LANGUAGE IN SCHOOL

M. M. LEWIS

LANGUAGE IN SCHOOL

LANGUAGE IN SCHOOL

by

M. M. LEWIS

VICE-PRINCIPAL, GOLDSMITH'S COLLEGE,
UNIVERSITY OF LONDON

MESTON TRAINING COLLEGE
MADRAS-14

UNIVERSITY OF LONDON PRESS LTD.
WAR-TIME ADDRESS:
ST. HUGH'S SCHOOL, BICKLEY, KENT

FIRST PRINTED *January* 1942

AGENTS OVERSEAS

AUSTRALIA, NEW ZEALAND AND SOUTH SEA ISLANDS
W. S. SMART, P.O. Box 120 C.C., SYDNEY, N.S.W.

CANADA : CLARKE, IRWIN & Co., Ltd.,
480–486 University Avenue, TORONTO.

INDIA LONGMANS, GREEN & Co., Ltd.,
BOMBAY : Nicol Road.
CALCUTTA : 17 Chittaranjan Avenue.
MADRAS : 36A Mount Road.

SOUTH AFRICA
H. B. TIMMINS, P.O. Box 94, CAPE TOWN.

Printed in Great Britain for the UNIVERSITY OF LONDON PRESS, LTD.,
by HAZELL, WATSON AND VINEY, LTD., London and Aylesbury.

Contents

CHAPTER		PAGE
I.	INTRODUCTION	1
	THE EVERYDAY USE OF LANGUAGE	
II.	THE EVERYDAY USE OF THE SPOKEN WORD	11
III.	THE EVERYDAY USE OF THE WRITTEN WORD	37
IV.	EVERYDAY LITERATURE .	65
	THE HIGHER USES OF LANGUAGE	
V.	SCIENCE AND POETRY	83
VI.	THE ÆSTHETIC INTENTION .	108
VII.	THE SCIENTIFIC INTENTION .	146
	THE TEACHER'S USE OF LANGUAGE	
VIII.	LANGUAGE IN THE CLASSROOM	197

My thanks, for their great help, to my colleagues Miss B. Paston Brown, Mr. G. J. Cons and Dr. M. Kaye, and to my wife.

My acknowledgments, for kind permission to use copyright work, to the proprietors of *Encyclopædia Britannica* for several paragraphs from the Eleventh edition ; to Messrs. Chatto & Windus for a passage from Richard Jefferies' *The Story of My Heart* ; to the Clarendon Press for a passage from H. J. Mackinder's *Britain and the British Isles* ; to Messrs. Williams & Norgate Ltd. for a paragraph from *Life Outlines of General Biology*, by J. A. Thomson and P. Geddes ; to the British Association for a paragraph from *The Presidential Address*, 1928, by Sir William Bragg ; to The Cambridge University Press for a paragraph from A. S. Eddington's *The Nature of the Physical World ;* to Messrs. Macmillan & Co., Ltd., for a passage from Thomas Hardy's *Under the Greenwood Tree*.

Chapter I

INTRODUCTION

I

THIS is not a book on the teaching of English—at least, not as the teaching of English is often understood. The teaching of English in school is commonly concerned with raising the standard of the child's literary powers; in writing, correctness and, if possible, a certain elegance; in the study of literature, comprehension and, if possible, some appreciation.

These aims are not to be gainsaid. Yet the teaching of English is felt to be unsatisfactory. It is said to have no method, no system, no accepted body of principles; some would add, no success. For some twenty years I have had opportunities of observing the teaching of English in a large variety of schools and of discussing its problems with many teachers, and I for one would certainly not say, no success. Nor is it necessarily a weakness in the teaching of English that it has no accepted method, system or body of principles. This may be, rather, a sign of vitality and of freedom from the fetters of tradition.

Nevertheless, the divergency of methods surely reflects a divergency of aims among teachers of English; the dissatisfaction of some with what satisfies others must be due to differences of general purpose and detailed intention. How grammar should be taught, whether it should be taught at all; whether poetry should be studied, or merely read, and in any

case, which poetry; can we teach essay-writing, and if we can, ought we; is there a place for Shakespeare in the school; if there is, ought he to be acted, or merely read,—these are some of the questions on which teachers differ. But no one questions the fundamental values of English in education—they are taken for granted.

This book is to discuss what is generally taken for granted. Every generation has to consider, for itself, the aims of education; it is essential for us, today, to ask ourselves what are the aims in education of the cultivation of the mother tongue.

II

Within the last half-century three important general changes in life and in thought have gone far to affect the position of the mother tongue in education and our treatment of it in school. These changes are the extension of education, the development of communication and an increased attention to the nature of language.

Education has been extended in three senses: there is a greater number of schools; these schools mean more to children, and try to do more for them. Education gathers in a larger number of people, it takes up a greater part of their lives and it covers a wider range of activity. Since language is inevitably the chief means of education, and education of any kind at all is based upon education in language, the growing range of education brings with it new problems in the teaching of the mother tongue.

For the teacher has a wider range of capacity to cope with and a greater variety of background to take into account; he must think of English not simply as the medium of literature, but rather as the mother tongue which enters into every aspect of life.

The problem is increased by the growth of communication; not only the greater ease with which we move from place to place, but the fuller power that we have, without moving at all, of being brought into relation with the thoughts and feelings of those who are far away in time and place. Four hundred years ago the advent of the printing press into the western world brought with it vast changes—still far from ended—for the lives of men in society. In our own day, in a single generation, the basis of society has again been changed almost beyond recognition by the speech machines—the telephone, the gramophone, the radio and the talking film.

Finally, there is a growing attention to the nature of language itself. This, no doubt, has in part gone along with the growing importance of language in our lives, but it is also in part due to the general change in the direction of science and philosophy during the nineteenth century. Biology invaded philosophy, psychology challenged the science of language. The machine-like and apparently irrational laws of the philologists and the speculations of philosophers concerning the origin of language were set in a new direction by a biological conception of the sources and functions of speech in the life of man.

These profound changes in the importance of language for each individual and for the community,

and the growing recognition of this importance, have brought with them changes in our treatment of English in the school; but hesitant changes, haunted by the fear that too great a breach with tradition—the tradition of the study of the classics—might well leave the teaching of English high and dry beyond hope of salvage.

Change is necessary, but it is not the intention of this book merely to suggest change. Nothing is so insidious in education as the allurements of "reform," and nothing so valueless as change for the sake of change. Traditional aims are often beyond question; traditional methods, often those which have come down to us as the final residue of experiment, experience and skill. But the school must reflect the movements of the greater world of life and of thought: changes in the part played by language and in our understanding of it demand that we as teachers shall think out for ourselves the principles of our approach to it in the school.

III

In doing this it would seem to be necessary to begin with the essential functions of language in general, as a guide to first principles in teaching the mother tongue. Language has both social and non-social functions. Socially it is used for expression and communication, that is, the evocation of a response; its non-social use is in the inner life of each person as an individual, purely for the sustenance of thought. Our attention to language in the school must take account of both its social and its individual characters.

Each of these functions must also be recognised as having a wide scope. Language is a means by which we express not only thought but also feeling and striving; it is moved not so often by the single stream of the intellect or the emotions as by the full current of mental life—reason, desire and impulse.

As a means of communication it not only enables us to deal with those immediately about us, but it also is the medium that stretches between us and those far removed in space and remote in time. Finally, as an aid to thought, as the indispensable servant of the mind, it not only provides a framework for an ordered structure of reasoning and knowledge, but it serves also to give body to the stirrings of emotion and direction to the energies of the will.

Then we must recognise that language permeates our lives so fully that it enters into every level of activity, from the most immediate and practical preoccupation with satisfying the first needs of the body, to the highest achievements of imagination and of reason.

All this means that education in language must be concerned with the spoken word no less than the written word; with utterance no less than with comprehension; with everyday life no less than with the world of books; with science no less than with literature.

Further, in taking heed of this wide range of functions, we shall be impelled to recognise that the nature of language varies in structure and in material, taking on a colour and a pattern in keeping with the function that it is intended to perform. The language

of the mind is not the same at every point as the language of communication; the form and the movement of imaginative literature would seem almost to lie in a different medium from the formulation of scientific thought; widest of all perhaps is the gulf between much of the language of action in everyday life, and the language of books, the language of education.

In ancient Egypt two styles of writing were used: the hieratic and the demotic, the priestly and the popular. In England today, as in every civilised community, two such forms of language remain side by side. The language of everyday life, though not wholly sundered from the language of books, has its own manner, its own structure and its own vocabulary. One of the aims of education, perhaps its chief aim, is to extend literacy, spreading it more widely throughout society and carrying it more deeply into the life and mind of each individual. Greater literacy is not simply greater skill in using words. It profoundly affects the nature and the direction of thought and feeling, and determines the daily conduct of living. Through language more than any other institution, society exercises a constant unfelt pressure upon the growing child, bringing him within reach of tradition —the heritage of the community of the past—and gathering him up into the march and the conflict of his own day, the burden of the community of the present.

This task of education, to extend literacy, is both more difficult and more urgent today than at any previous time in history. It is more difficult because

instead of confining itself to a favoured few, it seeks to bring within its net every child, however unfavourable the circumstances of his daily life, and however little his natural gifts may fit him to take his place in a literate community. It is a task more urgent because, with the growth of the machines of communication, a flood of words assails him in ever-increasing volume. Through the eye and through the ear—through the press, the radio, the cinema—words solicit him hour by hour, with the intention of influencing his thoughts, his feelings and his actions.

The ancient tasks of the school, to teach the child to read and to write, therefore take on a new significance. He must learn to listen as well as to read, to speak as well as to write; to listen and read with discrimination and understanding, and to write and speak with effect.

What can the school do? To find our way as teachers we must envisage our aims before we devise methods that will enable us to reach them. The aims of education in language can only be based upon an awareness of the functions of language. In the chapters that follow, an attempt is made to discuss these functions and to consider how they may guide us in the work of the classroom. We begin with the uses of language in everyday life: reading and writing, listening and speaking in relation to man's ordinary business of earning a living and of living with others. From this discussion we draw some conclusions as to what may reasonably be done in school. In the second part of the book we go on to the consideration of the higher uses of language, its

functions in imaginative literature on the one hand and in reasoned scientific exposition on the other. Once more we attempt to draw conclusions as to the teacher's practice ; this time, his aims and methods in guiding children in their approach to books and in developing their power of comprehension. In a final chapter we turn to the use of language in the classroom, and attempt to make a survey of the teacher's task in bridging the gap between the language of childhood and the language of education.

This book is addressed to the practical teacher, but it recognises that he is not so much concerned to make a collection of technical devices as to think about the principles that may rightly direct his work in the cultivation of the mother tongue.

THE EVERYDAY USE OF LANGUAGE

Chapter 2

THE EVERYDAY USE OF THE SPOKEN WORD

I

LANGUAGE is a form of social activity: this is the primary fact about language, and our chief clue if we are to understand how it works. Language develops only in society; it is society which determines the nature of each person's language, and language in its turn has its important effects upon social life.

It is true that language is also used in a very individual and personal way—a manner that at first sight seems to be entirely non-social—when it is used by each person silently, in the course of his private thought. But the language that we use privately in this way is only a development of the speech that we have learnt socially. When an Englishman thinks, he thinks in English, the language that he has learnt from the community in which he has been brought up.

If, then, we wish to understand the nature of language, we must see how it works in everyday life; socially, as a medium between man and man. And the basis of all language is everyday speech, the ordinary intercourse between people. All other forms of language—books, newspapers, the radio—are merely refinements and elaborations of this simple primary use. The chief function of language, that from which all other functions spring, is to act as a system of symbols by which a speaker brings a listener into co-operation with him.

Let us, then, look at a simple example taken from everyday life, a fragment of conversation that might be heard anywhere, at any time.

MR. SMITH : Where are my glasses ?

MRS. SMITH : Here they are.

MR. SMITH : Please give them to me.

Here we have language used in its most characteristic way—when someone is asking somebody else to do something for him ; this is the most primitive function of language, the form in which we find it before it is refined and elaborated by sophistication and civilisation. In a dialogue of this kind, because it is directed to a practical end, the three main uses of language occur naturally : the question, the statement and the command ; not isolated as they often are in grammar books, but together and surrounded by all the circumstances in which they arise and which give them meaning.

Now what happens here ? How does language work so that it expresses what Mr. Smith wants, and so brings Mrs. Smith to help him to obtain it ?

We have said that language is a system, and our example illustrates this. The first point is not merely that each word has a meaning, but that each word's meaning depends to some extent on its context—" glasses," for instance, or " they " or " here." It is also clear that what is meant depends very much on how the words are arranged—in English, if not in Latin. Mrs. Smith, for example, would have been rather puzzled if her husband had said, " Please give me to them." In these two respects, context and arrangement, language is more than a series of words,

it is a system. Each word gains its meaning by being a part of the system.

A third feature of language as a system is what we may call its "tune"—the pattern of intonation, rhythm, speed and emphasis. Mr. Smith asks his question in a particular tune—the kind of tune that we have learnt to associate with questions; he uses a certain speed and stresses certain words. If he uses a different tune, or spoke more rapidly and stressed other words—for instance, the word *are*—Mrs. Smith would know that not only was he asking a question, but asking it angrily. As it happens, he is perfectly calm and polite; intonation, speed, emphasis, all convey this to her, and she answers accordingly. All these features of language are, of course, used by all its speakers in a systematic way.

So much for language as a system; but why "symbols"? Obviously words symbolise or take the place of a speaker's physical behaviour. Mr. Smith, for instance, instead of doing something with his hands or his body—pointing, for instance—makes vocal sounds which symbolise the bodily movements that he might have made.

But this is not the whole story. Words not only replace a speaker's physical behaviour, an action such as pointing, they also express what he is thinking and feeling. From the way in which he speaks, Mrs. Smith knows that her husband has been wondering where his glasses are and feeling the need of them—all this is made clear by the way he asks his question. His words not only symbolise a possible physical action, but also his thoughts and feelings.

In the same way, his words evoke physical or vocal acts from his wife. She hands him his glasses; she says something. At the same time, his words cause her to think and feel in her turn. Her attention is directed to the glasses, she is made to remember where she last saw them, she feels pleased at being able to pass them to her husband, or perhaps irritated at having her knitting interrupted. In a word, her husband's question evokes both thoughts and feelings, as well as speech or physical actions.

These thoughts and feelings she expresses by saying, "Here they are," and this remark in its turn awakes thoughts and feelings in her husband, and their expression. So the dialogue goes on. On this occasion it is very soon ended—Mrs. Smith hands her husband his glasses. But in many other cases the conversation would continue, action on both sides would consist of linguistic intercourse—a very important form of human behaviour, perhaps the most important form of behaviour in civilised life today. In fact, almost all the things that matter to men are largely determined in this way—not by physical action, but by vocal interchange; if not by vocal interchange, then by its elaborations in writing. Communication is the main activity of mankind. In this book it will be for us to consider the chief ways in which both the spoken and the written language work within the societies of men.

II

As a beginning, it is evident that the most important lesson that a child has to learn is how to conduct

himself in the daily interchange of speech. It permeates the whole of his early education and is without doubt the basis of any further education that he may hope to achieve. And today it is no longer a part of his education that we can allow to look after itself. As the importance of the spoken word in everyday life increases, and as the opportunities of education are extended to include every child, it becomes less and less possible for us to rely upon the home to do all that is necessary to provide every child with skill in speech. Further, it is clear that not all children are equally gifted with skill in language, and that lack of this skill may impede all that a child does, may cause him to suffer in many different ways in his social life, and may prevent him from making the fullest use of the opportunities that we wish to throw open to him.

All children are not equally gifted with speech. What does this mean? Is a child's skill in speech due to his inheritance, or to his upbringing? The answer clearly is both. We speak of a child's first language as his mother tongue because, no doubt, it is the speech he learns at his mother's knee; but it is also his mother tongue in another sense—it is the matrix in which his later language grows and from which it emerges.

We do not, of course, mean that a Welsh child inherits the power of speaking Welsh; but so much is true, at any rate, that each child is born with an innate equipment of expressive cries, and with an innate endowment of ability to learn the language that is spoken around him. This innate equipment

and innate ability are the roots of all his further growth in speech.

We stress this fact because it is sometimes lost sight of, when language is thought of as skill that has to be learnt. Language certainly has to be learnt, but in the school it is of the utmost importance to realise that the origin of language in each of us is twofold: it springs partly from what we are born with and partly from what we learn. At every stage, language is a social process, to which something is contributed by the child, something by his social environment.

What arises from within the child and is contributed by him? He enters the field of language equipped with expressive cries, with a strong tendency to imitate what he hears, and with a constant tendency to babble—that is, to play with sounds, the raw material of language.

What arises from the child's environment, bringing a social influence to bear upon his use of language? The people round about the child constantly provide him with a model to imitate; but more than this, they constantly respond to the sounds that he utters, with the result that he comes to realise that he can use speech as a means of securing the co-operation of others in satisfying his needs.

Confining ourselves for the moment to the source of language in the child himself, it is clear that there are likely to be differences of endowment from child to child. One child is born with a wide range of expressive sounds, from the outset he is more expressive than others. Another child is given to babbling—he is fond of the sound of his own voice: or,

maybe, he has a finer ear than most in discriminating differences of sounds : or perhaps he is more receptive, readier to imitate ; or more intelligent in grasping the nature of language, quicker in seizing its possibilities. Although no attempt has yet been made to measure these differences, in the way that we measure differences of general intelligence, there is no question that they exist. Everyone accustomed to observe children will have noticed them ; and if a child is unfortunate enough to be extremely deficient in any of them, this will show itself as one of the recognised forms of defective speech.

The importance of all this to the teacher is very great, whatever the age of the children with whom he deals. For there is no other single feature of a man's make-up that contributes so much to his personality as his speech. By personality we mean the effect a man makes upon us, the half-conscious judgment that we form of him. His dress, his manner, his mannerisms, the occasional glimpses we get of his character—all these make an impression on us ; but his voice and speech most of all. A voice may please us or jar upon us ; tricks of speech may strike us as being childish, or effeminate, or vulgar, or forthright ; the mere fact that a man is voluble or drawls may at once put us out of harmony with him.

All this is important enough, but there is something more : the effect of his speech upon the speaker himself. The impression that a man's speech makes upon others is often reflected back upon him so that a sense of popularity may lead to self-confidence, while a suspicion that all is not well in his social life may

throw a man, and still more a child, in upon himself. Everyone who has experience of treating speech defects tells us that difficulties of speech and difficulties of temperament are closely connected, and that in many cases it is impossible to say which is the cause and which the effect. The most familiar instance is stammering, which almost invariably has a psychological basis as well as being merely a habit of the speech organs. The common view is that nervous people stammer; this is true enough, but frequently they are nervous because they stammer. The stammerer is afraid he will stammer, and of course this makes him stammer all the more. In many a case, when the patient has been shown that he really can speak in a normal manner, he loses some of his fear and anxiety; he becomes more self-confident and this in turn hastens his further improvement.

Most of us do not stammer; but many of us have tricks of speech which influence those whom we meet, and which might have been easily changed when we were children. But even the teacher who is convinced of this may well ask, What is it possible for me to do about it in the school? Before we attempt to answer this question we must briefly consider the second factor which influences the growth of speech —the effect of the language that each of us hears spoken around him from infancy.

III

Language is a product of society. No feature of a man's mind and behaviour is so highly socialised as his language—unless perhaps it is his thought. We

are accustomed, perhaps, to think of a man's speech as something highly personal, and of his unspoken thoughts as impregnably private. But as we shall show later, both the form and the working of a man's thoughts are fashioned by the society in which he lives. The chief agent in this process is language, and this too, at every stage of its growth, is shaped and determined by the community.

The child, as we have said, begins with expressive cries; two years pass, and he is using conventional speech. How is the child's cry transformed into language? A common view is simply that there is no connection between the two. The child's early cries, it is said, are like those of an animal; and since language is something distinctively human, something to which no animal can ever attain, there is an unbridgeable gap between the child's expressive cries and his later use of language.

But observation of children shows that this view cannot be justified. The growth of language is gradual, the transition from expressive cry to human speech being mainly the work of the society in which the child lives. This society is a community of speakers, creatures whose most characteristic behaviour is vocal language. What happens to the infant who breaks with a cry into the midst of this community? The chief thing that happens to him is that his cry is answered; this is the beginning of his language and the incentive of all its further growth.

The child's cry is answered, and so it is given a meaning. The child finds that his cry is a means of

satisfying his needs; and gradually, by his growing experience and intelligence and by the co-operation of those around him, the cry is forged into a tool, a social instrument. A tool, we are often reminded, is only a means of providing ourselves with an additional limb or other organ; in this sense, language is the supreme social tool, it is the tool by which the individual can best secure the co-operation of others.

The effect of constant communal intercourse is to transform the child's cries, and gradually bring them nearer to conventional speech, both in their form and their function. Observation shows that a child's earliest words are usually transformations of his still earlier cries, and that subsequent language in turn is based upon these early words.

The effects of all this upon the child's speech are manifold. First, his pronunciation—the repertory of sounds that he uses—is inevitably that of the language spoken around him. This is obvious enough: not quite so obvious is the effect upon his enunciation—that is, the distinctness of his speech, its rhythm and its tune. The child's enunciation tends to be that which is accepted by those around him. Little of this need be a conscious process, either for the child himself or for his society; what happens rather is that the standard of diction that is habitual to those around him will become stamped in and remain characteristic of the child.

Vocabulary also; the width of the child's vocabulary—the number of words that he uses and the range of their meaning—this again depends upon his social environment. No fact of children's language is so

well attested as this. Children from less educated homes almost invariably have a narrower vocabulary than those whose home life is more favourable. As for the actual meanings that the child gives to words, and the knowledge that he incorporates in them and commands by their use—all these too depend largely upon the influence of those who converse with the child.

But this must be emphasised: that progress in language would hardly take place without what we may call the practical incentive. The child does not learn to speak merely as a result of hearing others speak. Language is first of all a practical means of serving the child's needs—it is because it is practical that it develops. If the child did not require language to satisfy his vital needs, then his language would hardly grow at all. Nothing could be further from the facts than the notion that the child learns language by a series of lessons; that first he is told and then consciously learns that *ball* is the name of this thing and *cat* of that. What happens is that the child, under the stress of his need to secure the ball or draw attention to the cat, is impelled to substitute these conventional names for his primitive cries and gestures.

The process of acquiring language is, in brief, the substitution of conventional vocal behaviour for physical instinctive behaviour under the impulse of two main incentives. The first of these is the child's need to get others to do things for him; the second is his need to get others to share his feelings with him—his fears, his joys and his sorrows.

In a word, the child is helpless in a world of powerful beings. By means of language he can command some of their strength and can also command the supreme pleasure of emotional communion with them.

It follows, therefore, that a child whose needs are too readily satisfied, so that he has little need of language, may be retarded in speech no less than a child whose attempts at language find little response from those around him. One mark of the "spoilt" child—a child whose every wish is anticipated before he expresses it—is that his speech remains babyish; on the other hand, where a child is left to fend for himself, where even his cries are often neglected and he must himself take what he wants or go without, his speech will remain crude, unformed and incomplete.

For the teacher in school, what are the practical applications of this? Two principles, I think, clearly emerge: one, that the growth of skill in language depends not so much upon set lessons as upon the community of speech in which the child lives: secondly, that he will progress in speech only if he finds that this really provides a means by which he can satisfy his main needs. It is the task of the teacher to translate these principles into practice: classroom "methods" are only devices by which we attempt to achieve the conditions in which effective speech will develop.

IV

Beginning with the practical [illegible] of language in the everyday life of the child, what are we aiming at? We have first to train the child to express himself effectively in the many ordinary affairs of everyday life. In the spoken language, then, what must be our goal? Is it that children shall be able to act plays? Is it that they shall be able to speak verse well, individually and in chorus? Is it that they shall be able to prepare and make speeches in public? All these accomplishments, no doubt, are valuable, and perhaps not to be neglected in any school which aims at full education.

But far more fundamental, and far more immediately necessary, is the ability to speak clearly and pleasantly, to be effective in everyday conversation. The man educated in speech is the man whose speech is socially effective. Language, as we have seen, is a form of social behaviour by which the speaker attempts to secure the co-operation of others. Good speech is that speech which is effective in causing others to co-operate with us.

What, then, are the qualities of good speech? We judge speech by considering each of its three constituents: language, pronunciation and enunciation. The standards of language and of pronunciation are conventional, that is to say standards current in a particular community; the standard of enunciation is a standard of effectiveness independent of conventions.

Language of a good standard is language that is

grammatically correct, with a vocabulary of words used with the correct meanings. The standard of language in both grammar and vocabulary is determined by the usage current in a community at a particular time.

Pronunciation of a good standard is that in which a certain repertory of sounds is used, a repertory determined once more by current usage. This brings us at once to the vexed question of Standard English. What is this? The only answer is that it is the sort of English that is on the whole acceptable among educated Englishmen everywhere. In the case of grammar or meaning, this leads to little difficulty: the current usage of educated people is recorded adequately enough in good grammar-books and dictionaries. But when we come to pronunciation, we certainly find ourselves in trouble. The repertory of sounds current among educated speakers in one part of the country is certainly not wholly acceptable in other parts. But although this is true, I am inclined to think that the divergencies are exaggerated. If we confine ourselves to the speech of educated people, we find, wherever there are variant pronunciations, that most of these lie within a certain range, which form the limits of the standard. Take, for instance, the pronunciation of the first vowel (or rather diphthong) in the word *paper*. An educated Londoner certainly tends to say this differently from an educated Northerner, but both their pronunciations are acceptable, so far as they lie within the standard range. If, however, in making the sounds we exaggerate either the London or the Northern tendency, we soon

reach a point which will be recognised in both quarters as lying beyond the standard.

Where there are disagreements about pronunciation, these are often rooted in prejudice to a degree that would be surprising if we did not remember how far back in his history each person's speech goes, how unconscious he tends to be of it, and how, like every other intelligent animal, the human animal is suspicious of the unfamiliar. But familiarity breeds tolerance; there can be litttle doubt that the radio, which began by annoying everybody with its B.B.C. accent, will end by reconciling everybody to the notion of a standard. Only a few years ago it was still true that a child might never hear Standard English except in school, and perhaps not even there; today he will more likely than not hear it daily from the radio in his own home.

It may be asked whether it is really important for all children to speak Standard English. Some people are doubtful; remarks are made of the dangers of mass-production in education, of the peril of turning out thousands of children all from the same mould, all with the same speech. Of all the prejudices masquerading as principles that have ever been put forward in the name of liberty, this is surely the most ill-conceived. There is no value in standard speech except this: that as it is the language of educated people it is everywhere the password to their territory, so that if we leave the child "free" to speak the language of a more limited society we are inevitably penalising him in his intercourse with the larger community of educated men. And as for the dangers

of uniformity, these are purely imaginary. We need not fear that any two human beings will speak alike any more than we need fear identical finger-prints; personality and temperament will always be strong enough to make a man's speech his most distinctive characteristic.

At the same time, it must be pointed out that standard pronunciation is often confused with good enunciation. Speakers are said to be lip-lazy, when in fact they are speaking a dialect. We judge standard pronunciation by the repertory of sounds which a speaker intends to make; we judge enunciation by the clearness and efficiency with which he makes them. Two people may both be trying to make the same series of sounds in uttering the word *paper*—their pronunciation may be within the standard, but one may mumble, while the other enunciates well. Correct pronunciation depends, so to speak, upon which record we put on the gramophone, while good enunciation depends on the efficiency of the machine in producing the sounds.

It will be generally agreed that it is the business of the school to train good enunciation, merely because the person who enunciates badly is so much the less effective as a speaker, so much the less able to achieve what he intends through the medium of speech. The teacher, then, must know something of the principles of good enunciation. He will find it necessary to pay attention to a number of factors: voice-production, articulation, phrasing, intonation, stress, speed and general manner. Some of these present real difficulties even to the professed student of speech;

very little, for instance, is known of the nature of intonation. It is of course clear that few things in speech are so important as the pervading melody, that which so subtly informs us of the mood of the speaker. But how are we to train a sense of intonation? Nothing, perhaps, is more difficult.

Manner, again, is all-important; we do not normally attend to it, but it is constantly influencing us. A pleasant, easy manner, a smile and a gesture, have more effect upon a listener than the actual sounds we make or the clearness with which we make them. Perhaps even the radio announcer who irritates us would be more tolerable if we could see him, and on the whole it is better not to be ironical on the telephone.

These, then, are the main features of speech; and the teacher who, recognising his responsibilities, attempts to meet them is faced with a task worthy of his skill. But it is only very recently that these responsibilities have been recognised. Not that in the past the spoken word was entirely neglected in English schools. In the public schools there is an ancient tradition of public speaking and declamation going back to the sixteenth century; and reading aloud, at any rate, has been part of the curriculum of state schools throughout the seventy years of their existence. But it is only yesterday that the true importance of everyday language was first felt in the school; and it is only today that the speech machines have made us suddenly aware of the importance of the spoken word. And there is as yet no sign that it is receiving more attention than it deserves.

V

What do we ask of the teacher, if he is to be effective in dealing with children's speech? First of all, he must believe in the value of the spoken word, and understand its use in everyday life. He must himself speak well: in grammar, vocabulary, pronunciation and enunciation, his speech must be, if not beyond reproach, certainly of a good standard. He must have personality: always important in teaching, it is particularly important in those fields in which suggestion plays a part. He must have skill in voice-production, and understand how it is to be trained. He must have some knowledge of how to train enunciation, knowledge which cannot very well be had from books, but which must be won by actual experience. Then he must have a working knowledge of phonetics; that is, of the mechanism of speech, and in particular of the sounds of spoken English—not in order to teach phonetics to the children, but so that he shall be able to recognise their departures from good speech. Finally, he must be acquainted with the symptoms of those speech defects that require special treatment and with the methods used in their correction, not because he is to practise these methods himself, but so that he shall be able to notice defects readily, refer them for treatment to the trained speech therapist and help the therapist by supervising treatment in school.

Put down on paper like this, these demands suggest that only the archangel Michael could hope to become a good teacher of speech; but if we enume-

rate the necessary qualities of a good teacher of anything at all, we shall find that they ask little less. If we expect that a teacher shall have skill, personality and knowledge, this is not more than many teachers possess already. The work of education in spoken language can only grow if we have more teachers of the same kind.

VI

The methods generally used in schools may be classified in this way: first, those activities in which speech is cultivated as an art—the drama, verse and song; secondly, reading aloud; then, direct drill in pronunciation and enunciation; finally, classroom practice in speech, ranging from the formal lecture to informal conversation.

Generally in books on speech training there has been a tendency to emphasise the first three of these, and to consider the last—if it is considered at all—as spoken composition rather than speech training. There are perhaps reasons for this: interest in speech has naturally come from the elocutionist, the person interested in speech as an art. Further, admirable results can be obtained in this work: one can train children to speak well in acting a play or in reading aloud, they can be trained to carry out their sound-drill with great efficiency. But classroom practice in lecturing or conversation is slow work, the results are not so spectacular and the methods have to be informal—this alone proving an obstacle, for most of us naturally prefer the more formal methods which can be systematised, controlled and checked.

Nevertheless, I believe that classroom practice in spoken language is the most fruitful method of the four: for this reason, that it is actually the most direct—it provides the incentives and the conditions which are present in the everyday speech for which we are really training the child.

Take the methods in turn. Speech as an art is certainly valuable, in and for itself. For children who are at all interested, there is the continued reward of æsthetic enjoyment, the excitement of taking part in creative work. In acting a play or speaking verse in chorus something satisfying may be produced—a piece of co-operative work to which both teacher and children have contributed and which they may look upon with pride. The teacher in particular is able to feel, at the end perhaps of weeks of toil, that there is something to see and something to show others.

But when we ask what is the effect of this upon everyday speech, a doubt begins to creep in. At best, we can only hope that the standard reached will have its influence on daily conversation. But in most cases this is surely no more than a hope. Acting a play or speaking verse in chorus is so different from everyday conversation that there may be no transfer at all—a child efficient on the platform may lapse into the slovenliness of his "natural" speech when he reaches the street. And if, as in some cases, everyday classroom conversation is neglected in favour of dramatic and choral work, the result may be that the teacher is neglecting his most important task.

Something of the same kind may be said of reading

aloud, for so long the stand-by of the teacher anxious to improve speech. Here again a tangible result can be achieved ; but here again the conditions are so different from those of everyday speech as to make the likelihood of effective transfer very remote. Added to this is the further difficulty of the lack of incentive. As every teacher knows, few children—and these only the gifted ones—can be induced to take much interest in the mere business of reading aloud. At the best, the incentive to improve must be artificial ; how many of us desire or need to read aloud ? And work that in itself is felt to be meaningless is hardly likely to have a lasting effect upon the child's speech in general.

We are left with classroom drill in making sounds—this, at any rate, would seem to be practical. Certainly very definite and easily tested results may be achieved, and steady improvement may be observed in the children's ability to perform their sound-drill. But once more it must be emphasised that in the absence of practice in everyday spoken language, even sound-drill may be artificial and divorced from reality. It is more than doubtful that the effects of this drill will automatically be transferred to the child's ordinary speech.

My view is that all these methods are valuable, each in its own way. But the centre of the work, round which all these other activities must revolve, is actual practice in the spoken language of daily life.

What forms may this practice take ? With the younger children our task is obviously easier and more straightforward than with the older ones ; there is

MESTON TRAINING COLLEGE
617
MADRAS-14

more plasticity, habits have not been so strongly established and relatively simple tasks will be carried out with enjoyment. The main task of the teacher, then, is to see that the work is made real : that is, not too far removed from the conditions of real life. If this precaution is taken, the skilful teacher will have no difficulty in ensuring that the work is both interesting and effective.

The primary activity in speech practice for young children is the giving and understanding of instructions. This view may strike many teachers as extremely odd : they know well enough that the liveliest and most enjoyable work with children, their most natural activity in speech, is story-telling and dramatisation. This is not to be denied, and no one would wish to minimise the value of story and drama in the classroom. But while we believe this, we must not forget to keep before us the question, What is the most important use of speech for the child in everyday life, even when he is still a child ? The answer cannot be in doubt. He must be able to give and understand instructions, simple at first, more complicated as time goes on. Here speech is at once given a real value, a value that it normally has in everyday life. A natural incentive is present, and with it natural criteria how well does the child make himself understood ? How well does he understand others ? How can the speaker secure the ear of the listener ? What sort of response is the listener required to make ? These are aims and criteria which the child himself can be brought to understand—an overwhelming advantage in the development of any form of skill.

For the work to be successful it must be informal; but this throws upon the teacher the responsibility for seeing that beneath the informality there lies the firm framework of a systematic scheme of work. He must see that in the course of time each of the main features of good speech is emphasised: grammar, vocabulary, voice-production, pronunciation and enunciation. He must see that all of them are constantly brought into relation with the single central aim of speech—to communicate effectively with others. And he will probably succeed best if he is not in too much of a hurry: content to make sure of one point before the children proceed to the next.

Practice in giving and understanding instructions should be supplemented, as time goes on, by practice in conversation, such as shopping games and the dramatisation of simple scenes of everyday life. The teacher who believes in the value of this work will have no difficulty in devising activities closely related to the children's experiences in their environment.

For older children, incentives are rather more difficult to provide, although the problem will largely solve itself if the pupils come to the senior or secondary school with a background of training such as I have described. Now the giving and understanding of instructions will give place to more extended exposition, in which a child explains to an audience a topic familiar to him but not to them. Work of this kind is common in many schools in the form of classroom lectures; nevertheless, one caution is perhaps necessary—that the lectures do not degenerate into the reading of papers, or become too formal.

Success in this respect may be measured by the ease with which real discussion arises, so that, without the necessity of formal rules, the class enters into debate with vigour. On the whole, the best speech-training is that in which the speaker is thinking about what he is saying, the teacher is thinking about how he is saying it and the classroom audience about both.

So much for exposition: but what form can practice in conversation take with these older children? The use of the speech-machines, I think, naturally enters here. Training in the use of the telephone is of course training in conversation; very many schools have now provided themselves with second-hand apparatus, which, although not quite up-to-date, is perfectly satisfactory for training in speech. Practice in broadcasting, again, is excellent practice in extended speech: classroom lecturing at the microphone will often provide, at little expense, a new incentive to older pupils for whom straightforward talks are beginning to appear commonplace.

Mention of the speech-machines reminds us of the need for training in listening—a task for which the school is only beginning to take responsibility, and for which the telephone, the gramophone and the radio provide the natural means. Some teachers are already engaged in schemes of work in which the periods of listening are gradually extended, the nature of the material gradually increased in difficulty, and a critical attitude gradually developed, as the children pass through the school.

VII

If the teacher makes everyday speech the centre of his work, then he may profitably supplement it by the other methods we have mentioned. He can note the various deficiencies of speech which appear in the classroom, and devote special practice to them in the periods of sound-drill. He may, if he has a taste for the cultivation of reading aloud, link this up with everyday speech by drawing attention to specific features—for instance, phrasing and intonation—and providing an example to imitate. And he can make dramatic work and verse-speaking the rewards of achievement in the humbler skill of daily speech. In this way, all the work in speech-training will become coherent and have its due effect upon every-day spoken language; not merely automatically, but because the connections are actually established by the organisation of school activity. And in this way speech-training will be brought into fruitful relation with its true centre—the stem from which it has sometimes been unduly severed—the spoken language used as a means of intercourse.

Two things more may be said. For most teachers it will hardly be necessary to point out that adverse criticism of an individual child should never be made in the open classroom by the teacher. All children—and most adults—resent derogatory remarks about their speech. This is perhaps because speech is so largely subconscious: day by day we think about what we are saying and not about how we are saying it; and habits grow. Suddenly we are made fully

aware of what before was only half-conscious: one of our deeply planted habits is taken up and its roots examined. The process is uncomfortable. Personal difficulties should be discussed privately. It is, however, possible in a well-conducted class for criticism of one member to be made by others without ill-effect.

Finally, a word must be said in answer to those who hold that all speech-training in school is futile in that the child whose home life provides imperfect speech will at best remain bilingual, at worst find his superior speech sneered at. One answer is that if he must remain bilingual, even this is a better fate than to be unilingual in a limited dialect; but I do not think that this is the whole answer. The increased ease of communication and the coming of the speech-machines have brought with them an increased tolerance for educated speech—a tolerance the growth of which can be hastened by speech-training in school. The time is surely coming when, on the other hand, it will be found intolerable that a man should permanently be marked off as inferior merely because his education in the spoken word has been confined to the speech of a limited society.

Chapter 3

THE E[illegible]DAY USE OF THE WRITTEN WORD

I

WHY does the ordinary person need to write and read? Both writing and reading may serve the highest purposes of human life. If we consider their ultimate values, writing is a medium of self-expression, a means by which a man may find a worthy embodiment of his deepest feelings and highest aspirations. And reading is a means by which he may enter into the full heritage of humanity.

But much nearer home, and before we may allow ourselves to consider these heights, lie the everyday common uses of writing and reading, two forms of skill that a man must command in order to satisfy his everyday practical needs. First of all there is, quite simply, the ability to give instructions in writing and understand the written instructions of others; next, perhaps, ability to write the ordinary letters that serve our daily social intercourse; then the need to be able to consult works of reference, such as time-tables and directories; the ability to understand every-day books of practical instructions; and, finally, the ability to read a newspaper.

Everybody would admit that a man must be able to do those things in order to live without discomfort in the world today; but it might very well be urged—particularly by teachers—that there is no need to give special attention to them in school. Surely, it might be said, if we give a child training in self-expression through writing and cultivate in him the appreciation

of good literature, then the lesser arts will come of themselves—he will find himself well enough able to read and write for ordinary everyday purposes.

If this really were the case, all would be well, and the school could go on in the traditional manner, trying to train boys and girls to write essays and to appreciate verse and the drama. But how far does education directed in this way really fit one to use language for the more ordinary purposes of life? Much, of course, depends upon the child's intelligence and his environment at home; the intelligent boy, or the boy from an educated home, may be allowed to fend for himself in learning the everyday uses of language. But the less intelligent boy, or the boy whose home life is cramped, certainly must not be neglected in this matter. For the ability to write an essay or to appreciate verse certainly does not always bring with it skill in writing or reading for everyday purposes. The school which confines itself to the higher uses of language will not only fail to achieve them for many children, but fail also to achieve any compensating skill in the practical uses of language.

II

Children's first need—the primary need of all of us in using the written language—is to be able to give and understand instructions in writing. With the necessary increase of difficulty this is something that needs to be cultivated at every stage of the school course. To explain simply and clearly what has to be done, and to understand at once the explanations of others, are not common accomplishments, but

they are certainly common needs. Both in the school and in adult life they serve many purposes. It should be a major aim of the school to train children to perform these essential tasks of language effectively.

Success in this work depends upon a clear realisation of children's difficulties. The person who is practised in exposition, and accustomed to obtain information from books—in particular, the teacher—may not easily appreciate the difficulties that a child often encounters in these tasks. Before, therefore, we discuss methods, we must briefly consider some of the difficulties. They are difficulties likely to arise in spoken exposition also, but so much less severely than in written exposition, that we have thought it best to postpone the discussion of them until this moment.

The main difficulties seem to be of four kinds: first, the relative lack of incentive; secondly, the writer's difficulty in putting himself in the place of the reader; then, the difficulty of logical order; and, finally, the lack of a natural audience.

In order to appreciate the nature of these difficulties, it will be necessary to venture into a brief study of the way in which children's minds normally work. For the difficulties that a child encounters when he attempts exposition arise partly out of his general immaturity and partly out of the functions that language naturally have for him when he first begins to use it.

To begin with the lack of incentive to learn how to put instructions on paper: this is a serious and constant difficulty. When a child speaks, there is always

the incentive provided by the listener, who is actually present and who normally responds, at the very least, by his attention. But when we write, we speak to an absent reader; and unless the child has actually seen another person read his writing and act upon it, the main incentive is lost. Written work in school tends to be very artificial, with little or no parallel in real life; the child writes as a rule for the eye of the teacher; as a result it is frequently very difficult to convince him of the value of setting down on paper what is already perfectly familiar to him, and presumably familiar to his reader. In everyday life, when we write it is because we intend to communicate with someone and obtain a reply from him. It is essential to secure similar conditions in the classroom.

The next difficulty for the child in using the written word is the need to present knowledge and experience in an objective fashion, so that as a writer he is, in effect, putting himself in the place of the reader. Something of this kind is, of course, involved in all writing; but the teacher who by nature has some verbal facility usually has acquired it so easily and so long ago that he may fail to recognise how difficult it may be for the child. For almost everything in the child's early history and development works against the objective use of language. The child's primitive use of speech arises, as we have said, out of the pressure of his personal needs, so that his use of words tends to be centred upon himself. To learn to use his words in an objective fashion is often a considerable step for him.

A simple example may serve to illustrate this.

What is the meaning of the word *mama* first uses it, normally at some time towards his first year? The only way in which we can this question is by noticing the circumstances in w children use this word, and the manner in which the respond to it when it is used by others. We find that a child will certainly cry *mama* when he wishes to attract the attention of his mother, but at the same period of his life he will also use it in a large variety of circumstances—when he desires food, or a plaything, or to be made comfortable; when he is tired, or hungry, or in pain; when he desires company; as a means of attracting the attention of any grown-up person; merely as a general expression of need when he is quite alone; or perhaps simply as a means of expressing his pleasure at the sight of a picture of a woman. What, then, is the meaning of this word for the child? Looked at from the adult point of view, the word has no one specific meaning; at best we must say that it is used with a number of wide and somewhat undifferentiated meanings, largely emotional in nature. For the child, the meaning of the word, instead of being directed outwards towards a specific object or group of objects, has at its centre the child himself. As time goes on, the meaning of *mama* certainly begins to be more objective, but for a very long time the word will mean for the child a person who stands in a peculiar emotional relationship to himself; it is an expression of his feelings.

But in the adult world the word *mother* has an objective meaning: it is applied to a person who stands in a specific relation to another, a relation which can be

scribed; it means also an animal which ... similar relation to another animal, and it ... to have certain derived meanings as in the ...s "mother-country" and "Mother Nature." ...he child's use of the word only very gradually approaches these objective meanings, and all through his childhood there is a strong tendency for the primary emotional significance to predominate. And what is true of the word *mama* is true of the child's speech in general.

It is one of the tasks of education gradually to increase the objective and specific meanings of words for the child. But the process is slow. The emotional and personal colouring of language tends to persist—in all children to some extent and in some children more than in others. It shows itself particularly in the manner which we have mentioned: an inability to view one's own language objectively; so that the speaker or writer fails to realise that the listener or reader has a different background of experience from his own, and therefore understands words differently. How much may the other person be expected to know? This is the question that runs throughout the use of language. The born expounder is the one who readily puts himself in the place of his readers. But many children are far from being born expounders, and have to learn how to make things clear to others.

The third difficulty is that of logical order. A good piece of exposition really asks a great deal of the child. For what he has to do is first to break up the continuity of an experience into its parts and then recombine them in order to make the process clear to

others. This is certainly very often in writing, as a rule. They are hampered by two characteristic features of their development. First of all, their power of reasoning is immature and unskilful, with the result that they find it difficult to see the logical connections which unite a series of experiences, and through which these can be built up into one coherent whole. Secondly, they find it difficult to translate physical acts into words. For a child's inability to explain a process may have little or nothing to do with his practical ability; he may be quite skilful in carrying out the process, but painfully stupid when he attempts to explain it to someone else. The difficulty arises as soon as the child tries to pass from the level of physical action to the level of verbal symbols.

Some interesting examples of this are given by Piaget in his well-known book *The Language and Thought of the Child*. For instance, he explained to some children between the ages of six and seven two simple diagrams of a water-tap, showing it open and closed. By question and discussion he made sure that the diagrams were fully understood; a child's task was then to explain the diagrams to another child who had not seen them. What happened? Here was a case where the child was fully able to carry out a physical act, to manipulate the tap itself; he was also quite well able to understand the representation of the process in the form of a diagram. But when the children were asked to explain the diagrams in words they at once became confused and incoherent. This is what a boy of six-and-a-half said: "You see, it's like this (pointing to Diagram I); it's open, the

goes through touches the little pipe, that lets the water run. There (Diagram II) it's closed, now we can't see the little pipe that runs. It's open, then there (Diagram II) it's closed. You see (Diagram II) we can't see the little pipe any more, it's hidden away, then the water comes like this (pointing), it wouldn't touch the other one any more."[1]

The child's difficulty here, we must repeat, is not one of physical action, nor even of thought, but of language. He can carry out the process; he can understand it; what he cannot do is to translate it into language logically arranged.

The fourth difficulty children find in exposition arises from the absence of an audience. This, in fact, is the fundamental need; if only a real audience is present the other difficulties are very much lightened. And this explains also why spoken exposition is more successful than written. With an audience in front of us we can use the ordinary subsidiary aids in conveying meaning: not only gesture, posture and general manner, but also intonation, stress, rhythm and pace. We can also tell by the way in which the listener responds how well he understands what we are saying, and can adapt our explanations to him. But in written language not only is there no immediate response, but, more than this, the writer has somehow or other to make up for the absence of all the subsidiary aids to the spoken word.

Our problem, then, is this: can we provide a real

[1] A free translation from Piaget: *Le Langage et la Pensée chez L'Enfant* (1923), p. 119.

audience for the child's practice in writing, [illegible] everyday conditions of the classroom? If we can, then the other difficulties will certainly be lessened; an incentive will be provided, the child will be spurred to an objective use of language, and he will feel much more keenly the necessity for presenting his ideas in a logical fashion. Before, therefore, we discuss methods of training the child we must consider the question of an audience.

In one sense, every child who writes in school has an audience in mind—the teacher. But the teacher, as we have said, provides a most peculiar and artificial audience of a kind to be met with nowhere outside the classroom or the examination room—he is a reader who normally knows more about the writer's topic than the writer himself. The effect of this upon the child is thorough and inescapable. He knows very well that the teacher does not really wish to be informed, that the teacher is not really interested in what he is saying, but only in how he is saying it. While the child writes, therefore, the incentive of a true audience is absent, and the task of writing is correspondingly dull and laborious.

We must attempt to introduce into classroom practice a real audience for written as well as for spoken work. An audience is actually there, the best audience that a child can have—other children of his own age. Here is an audience that normally will know less than the child himself about his chosen topic; an audience whose response to what he writes will immediately impress him. He will feel the necessity for really making himself clear; he will

that they are more interested in what he has to say than how he says it; and, above all, he will feel that their assertions of ignorance and misunderstanding are real, not pretence like those of the teacher, who commonly asserts that he does not understand when both he and the child know very well that this is only a customary part of the game of school-teaching.

How can this be done? How can an audience of fellow-children be provided for the child? With the younger children this is not very difficult: writing is little more than the spoken word transferred to paper, and may be carried out under the same conditions as speaking. Instructions and letters, for example, may be read out in class and the response by the listeners noticed there and then. But as the child grows older, his written language tends to diverge from the spoken, and the reading aloud of all that is written becomes an artificial procedure.

Through a transitional stage we may lead the class to the period when all that is written is silently read by some other person. For instance, with children of eleven or twelve a game may be played in which an instruction is written by one child, another child leaves the room, and in his absence the instruction is read to the whole class. The absent child returns, reads the instruction silently and proceeds to carry it out, with the class to judge both whether the instruction is clear and whether it has been well understood.

As we pass up through the school, written instructions should more and more be directed to a silent reader, while at the same time they are given a back-

ground of practical activity. At every stage of the work natural opportunities for this constantly arise. Plans have to be made for carrying out some common task—the making of some article of handicraft, the planning of a scientific experiment, the arrangement of a botanical or geographical or historical excursion, even the production of a play. If the teacher himself prepares the necessary instructions, an invaluable opportunity is being lost. Many teachers have found it profitable to bring their class into co-operation from the very beginning of such a piece of work; discussion takes place and written instructions and plans of procedure are attempted by the class either as individuals or in groups. Criticism and revision of these attempts follow, and when at last the instructions are given their final shape there still remains the ultimate test of them: how well they work in practice.

Subsidiary devices and exercises will naturally be used: for instance, instructions may be drawn up independently by different members of the class, papers may be exchanged and short written criticisms handed back with the papers to their authors. Discussion in pairs then takes place, the teacher acting as arbiter in cases of difficulty. But throughout, the general principle must be observed—the value of instructions is that they guide physical action.

Out of work of this kind more difficult exposition naturally grows. How to perform a simple task; how to get to a particular place; how a machine works, the principles of its construction—these lead on, in the upper part of a senior or secondary school, to the logical exposition of ideas. With this we reach a

here the direction and practical criterion of ing are no longer the performance of a series of physical actions, but actually the effect that the written word has upon the reader. Here, then, physical action need not follow ; it is sufficient if the exposition is addressed either to another member of the class or to the teacher—if it is a topic in which the teacher is really interested and needs to be informed—or to the class as a whole. For this last purpose some teachers have found it a useful practice to collect the work of the class periodically into gazettes or magazines which are passed round and read, written criticisms being made if desired, to be handed back to the writers. In this way the work is always undertaken with a specific audience in mind.

So much for instructions and exposition ; when we come to letter-writing the necessity for a real audience is even more urgent. But the ordinary conditions of school and home life furnish plenty of opportunities for this to the teacher who is alert to notice them. With the younger children both real letters and those written in play are sufficient to provide the right atmosphere ; but with the older children play becomes less possible and at the same time the scope of real letters also becomes limited because of growing reticence. In an ordinary school, however, there is a constant need for minor correspondence in connection with everyday business, games and clubs, and there is no doubt that much of this, normally done by teachers, prefects or club officials, may very well be made the basis of wider practice in real letter-writing. In this way the main principle of everyday

writing is kept in mind, in that it is given a natural basis and incentive by being directed to an actual reader and related to practical life.

III

Methods of teaching written exposition can be arranged as a series of stages: first, the choice of a topic; then, putting ideas into order; next, the actual business of writing; finally, the treatment of the written work by the teacher, by the class and by the writer himself. Here we can take these stages in their order, but in school the order may well be different, or some of these stages may be combined; for, as we have suggested in dealing with spoken language, a good deal of really successful work consists in giving an informal appearance and atmosphere to what is, beneath the surface, systematic and carefully controlled.

Take first the choice of subject. Every teacher realises that nothing is so important as this. We have all seen the blank look that spreads over a child's face as he sits biting his pen and wondering what on earth he is to say about the topic that stares at him blankly from the top of the blank page. And every teacher knows that if only a topic is so chosen that luckily it interests the child, then half the battle is won.

But the conscientious teacher may be a little worried at putting this into practice. Are the topics that children themselves choose worth writing about? Surely, he may think, the everyday thoughts and experiences of a child are likely to be so trivial as to be unworthy of the classroom; and surely they must be

so limited in scope as to afford no exercise in the wider vocabulary and higher graces of English. I think that there is a simple answer to this: the teacher must begin by forgetting that he is a literary person, the custodian of classical English, and must remember that his first duty is to help the child to write in such a fashion as to satisfy his everyday needs.[1]

Should the child, however, always be allowed to choose his own topic? On the whole, experience certainly shows that this is the direction in which to aim; for unless a child is interested he can hardly have an incentive to write. And without an incentive expression is lifeless. But we may make just as serious a mistake in going too far towards this extreme as towards the other. If children are always free to choose their own topic, the work becomes extremely difficult to systematise and control. First of all, a child's own choice of topics may restrict him to much narrower limits than the true range of his powers; and one of our tasks in school is to extend the experience of the child so that he becomes aware of the full

[1] Discerning teachers have always been aware of the problem:

John Brinsley, *Ludus Literarius*, 1612: For telling a child that he must invent variety of matter of his owne head, to write to his friend, this is a taske overhard for ordinary wits. For what can a child have in his understanding to be able to conceive or write of, which he hath not read or some way knowne before?

John Locke, *Thoughts concerning Education*, 1693: Here the poor lad, who wants knowledge of those things he is to speak of, which is to be had only from time and observation, must set his invention on the rack, to say something where he knows nothing; which is a sort of Egyptian tyranny, to bid them make bricks who have not yet any of the materials. And therefore it is usual in such cases, for the poor children to go to those of higher forms with this petition, Pray give me a little sense; which, whether it be more reasonable or more ridiculous, is not easy to determine.

width of his own ability. Further, with free choice of topic in a class, the variety of subject may become so great as to make classwork impossible. Yet much is to be gained by classwork, by treating the class as a group working in co-operation rather than as a collection of detached individuals.

The most fruitful principle in guiding children's choice of topics seems, then, to be this: for the teacher to choose and informally introduce a central theme which naturally arises out of the common experiences of the class as a whole, every individual being then encouraged to choose his own manner of treatment. In this way considerable freedom of personal choice may be allowed, while at the same time there will be a certain unity within the group, and a centre round which classwork may profitably move.

At the same time the adoption of this general principle should not preclude the teacher from occasionally allowing entire freedom of choice, and occasionally—more rarely, I think—demanding of the whole class that they should all attempt to deal with one and the same topic from the same point of view. The organisation of work in this way—allowing more freedom of choice on some occasions and less on others—will present little difficulty if the teacher is prepared to adopt our main principle: that everyday practice in written language should arise from and be directed towards everyday experiences.

IV

The topic has been chosen; what is the next step? Before the children can put their ideas in order, they

be sure of their ideas. This is different from the problem that arises in some classrooms, where, the topic having been chosen, it becomes necessary to give the children ideas to express. Nothing could be more artificial than this—based, as it is, upon the assumption that the ultimate aim is the writing of essays. In ordinary adult life the rarest kind of writing is the essay, written for its own sake, out of the blue. Normally we write when we have something to say to someone. There are experiences we need to express in language in order to influence the other person. We already have the ideas; the task is to put them into words.

It is this natural state of affairs that we have envisaged in school. The theme consists of experiences familiar to the child; there is no need for the teacher to give him ideas. But something has to be done to ensure that the child has the relevant ideas before him. The first task, then, is recollection. With the younger children this can be done by oral discussion—a practice which has one great advantage: it enables the teacher to keep an eye on the process, to guide the child in summoning his ideas to the light of day.

But there are objections to this practice which are sometimes overlooked. In the first place, collective work of this kind tends to weaken the power of the individual child to carry out the task for himself. The child of sluggish mind inevitably learns to wait for help; so we tend to rob him of the very exercise that he needs most. Secondly, the method itself is artificial. Surely we do not mean to train children

so that every time they write they must first needs discuss the whole thing aloud.

The principle is clear: preparation for writing should be written. The child should be trained to put pen to paper freely, to jot down his ideas as they occur, even before he puts them in order. Frequently, as time goes on, some children learn to arrange their ideas as they recollect them, although few ever reach the stage when this preliminary survey is itself sufficient to ensure a completely logical order. On the other hand, too much may be made by the methodical teacher of this preliminary spadework. Many of us find that the best way to collect our ideas is to write. The ideas flow out of the pen and take shape as we go on.

To sum up, this then can be said. For the younger child oral discussion is no doubt necessary, but he should be weaned of this as early as possible. He should be trained to collect his ideas pen in hand, but he should not be compelled to linger at this stage of his work if he feels impelled to pass on to the next.

V

Ideas have been collected; now to put them in order. For many children this step is more difficult than any other. The simple and obvious thing is to show the class how to make a plan. A typical subject is taken and a possible scheme of treatment worked out with the class on the blackboard, the finished plan indicating how the successive ideas may be connected in a logical manner. Classwork of this kind is helpful, and should be done sooner or later,

for in developing any form of skill, imitation of the teacher always plays an important part.

But much will be lacking if we do this and this only. The children's own schemes will tend to resemble the teacher's far too closely. This uniformity would not of itself matter, if it did not mean that the children were using the model blindly, stretching the standard plan to fit their theme, whatever it may be. They are not, in fact, likely to gain much understanding either of the necessity of logical order or of its nature.

Here are our two aims : the child must be brought to feel both that logical order is essential and to know what logical order is. Now one of the points emphasised by Piaget is that the need for logical order only develops through social intercourse ; his observations of children show that it is the effort to communicate our ideas to another that forces us to arrange them in a logical manner. The need for logical order is largely social. And our understanding of the nature of logical order grows as we try to explain ourselves. When we say that a statement is logical we mean that it is in a form acceptable to anyone who reasons ; and in the course of explaining ourselves, if we did not need to fit our statement to the movements of a reader's mind when he reasons, we should hardly need to make the statement logical at all.

All this brings us back again to the need to give written work a social and practical setting. The child who writes with a definite reader in mind will soon see the necessity of putting his ideas in an

orderly way. He realises that he must be understood ; more than this, his work must stand up to the practical test : How do the instructions work out in practice ? Further, in the ordinary conditions of co-operative groupwork he will himself sometimes be the reader, and when he compares different statements, some logically written, others not so well arranged, he will again be led to see the necessity of order.

But from realising the need for logical order to commanding it is a long step. It is not a step to be taken in a day. We cannot hope to teach children to write logically by giving them a few exercises in the preparation of schemes. Indeed, children may be good at making out schemes without their written work becoming very much more orderly. An understanding of order can only develop gradually, step by step throughout the school course.

Let us look at the task in a practical way and see what can be done. Here is a boy of ten setting out to explain a process—for instance, how to make a cardboard model of something. To explain is to lay out one's ideas in an orderly manner ; and to do this properly the boy must, I think, use his imagination ; that is, he must be able to picture the process from start to finish as an ordered sequence of things done. And he must be able to translate his imagination into words. There are, so to speak, three levels with which the child has to deal : the level of actual practice—doing the job with his hands ; the level of imagination—reconstructing the process in his mind ; and the level of language—translating the imagined process into words.

Now there is no doubt that many children find the transition from level to level very difficult. We shall attempt to discuss the causes of this later, when we consider the relation between language and thought [1]; here it is enough to point out that the child may be greatly helped in making the transition from practical action to imagination, and from imagination to language, if he is able to use pictures and diagrams. For a picture is a prop to the imagination, while a diagram is a schematic representation of things, and so an aid to presenting them logically in words.

Suppose, for instance, that a child is given a series of pictures showing the successive stages of a process. It is comparatively easy for him to describe the pictures in turn, and in doing this he gives an ordered account of the process itself. The use of diagrams is perhaps a little more difficult, but when they are mastered the benefit is correspondingly great; in following a series of diagrams we make a logical analysis of the corresponding process.

The general plan of procedure, as worked out in practice, may therefore be this. From an early stage, even with children of seven, pictures are used to illustrate series of events. Children are familiar with serial pictures of this kind from the "comic strips" of the newspapers. First the pictures may simply be described, in order. Then a series of pictures may be jumbled, to be arranged in their true order before they are described: it is interesting to find that the mere task of rearrangement presents a real problem in logical thinking to some children. The next stage is

[1] See page 210.

to summarise each picture of a series in a sentence: the sentences taken in order then form a plan or scheme upon which exposition may be based.

Meanwhile, whenever the children are confronted with the need to explain a process, they may be encouraged to imagine—perhaps even to draw—a series of pictures; this in itself at once helps to bring order into their work. From this they pass to the stage when, instead of imagining pictures, they put down a series of possible titles, and so again arrive at a scheme.

Diagrams may be used in a similarly helpful way. Instead of pictures of the steps of the process itself, the pupil may draw diagrams indicating how things work. An obvious example is a set of diagrams showing the successive steps in the making of some article; but diagrams may be equally useful in indicating the outline or plan of an exposition, or for showing the arrangement of players in a game, or even of the actors in a scene of a play.

Teachers who adopt diagrams for these purposes find that they lead to orderly exposition in two ways. First, in the diagram before him the child has a guide in his attempt to achieve order; secondly, the interpretation of the diagram in words so that others may understand it is itself a very good exercise in the accurate use of language.

Some teachers, however, are disposed to draw the line at including diagrams in actual written work; they are held back by the feeling that diagrams are not quite proper in the English class. My own view is that this is little more than a prejudice based once

more upon the notion that written expression should aim at essay-writing. One thing may perhaps be said: that a diagram can never become a substitute for writing; at most it is only an aid. The value of diagrams in our work is just this, that they have to be explained in words.

These, briefly, are the ways in which pictures and diagrams can help. They are not, of course, the only means; there must be practice in analysing instructions and exposition, to notice how their writers achieve good order. By a course of this work, carried on steadily through the school, a conception of logical arrangement can gradually be developed in the mind of a child and will begin to show itself in his exposition.

VI

About the actual business of writing we do not need to say very much. Some teachers may feel that nothing need be said at all—we give the child pen, ink and paper and let him get on with his work.

On the whole, this is sound enough; leaving the work to the child's own initiative is far better than constant supervision. Nevertheless, if we compare training in writing with training in other forms of skill we see a very marked difference in the function of the teacher. For instance, in handwork and drawing the teacher works with his pupils; he keeps them under his eye while they work, and goes from one to another giving advice and help; he himself takes part in the work, and is prepared to show his own performance as a model. He looks over a child's shoulder and takes the pencil or the tool out

of his hand for a moment, or he gathers the class together to show them how to overcome some difficulty of technique.

In the training of written language all is different. The actual writing is commonly done out of sight of the teacher, as preparation or homework, while it is the rarest thing for a teacher to show what he can do with the pen.

The reasons for this difference are obvious enough : the traditions are different. Written language is the task of the learned man, the clerk at his desk, while handwork and drawing are felt to be crafts. Yet language is a form of skill, and a great deal is to be gained if the atmosphere of the workshop is carried into the classroom where written work is going on. A good deal of the time the child should of course be left to himself, but sometimes the teacher should certainly be there, not to interfere—any more than the good teacher of handicraft will intervene unnecessarily—but to keep an eye on things and give advice at the critical moment when the child is struggling with some problem of expression. In the training of any form of skill, it is a great gain for the learner to have a skilled person at hand watching his mistakes and ready to intervene at the right point. In learning how to write, the pupil is generally denied this advantage : the discussion of a mistake is left until the work is finished, when the problem has long grown cold.

The teacher of language should also be ready to act as a model for his class. Nothing could be more striking than the difference here between the traditions

of writing and those of handwork. The teacher of a craft would command little confidence with his class if he confined himself to telling them how and never showed them how. But most teachers of English would—at any rate to begin with—be taken aback at the suggestion that they should show their own attempts at writing to their classes for criticism. I rather think that most of them would disclaim any pretence to be good writers, and would urge that they are quite unfit to serve as models. To the common-sense person this seems merely ludicrous, or false modesty carried to a painful extreme. But as there is no doubt of the sincerity of this feeling, we must take it for what it is: another symptom of the weakness that we have already pointed out in the teaching of English—the literary tradition, the convention that our aim is to turn out literary people, essay-writers. No doubt it is true that the average teacher is not a Charles Lamb or a Robert Louis Stevenson, but the teacher of woodwork does not withhold his work because he is not a Chippendale.

My suggestion is, that occasionally, when the class has settled down to write, the teacher should go to his desk and try his hand at a similar topic. At the very least, this will remind him of the problems of writing and bring him face to face with the difficulties that sometimes lie unsuspected beneath the surface of an apparently straightforward theme. And if sometimes he submits the results to class criticism, he will find, I think, that the atmosphere is made more practical, and that co-operation is much more readily obtained.

VII

When the writing is finished there is still much to be done; for the teacher perhaps the most important task of all—correction. This is usually tiresome even to the enthusiastic teacher; it seems both laborious and useless. Frequently all that upholds him in this most thankless of tasks is his conscientiousness: work done must be corrected. Thus a conscientious teacher may find himself chained to a pile of exercises for many hours a week, the monotony of his toil not even relieved by the hope that it is useful.

Can we let a little light into what is undoubtedly the darkest corner of our methods of teaching the written language? I think that once more a great deal is to be gained by asking ourselves what exactly it is that we are aiming at.

The first principle—platitude if you wish—is that correction is intended to benefit the person who has made the error. The teacher's business is only to indicate mistakes: unless the child really corrects himself, the marking of books is so much time wasted.

This principle immediately brings with it practical results. The first, and most important, is that not every mistake need be indicated by the teacher. The conscientious teacher frequently "marks" books by underlining every mistake. Nothing could be more injudicious. In the first place, the weak child, the one who has made many mistakes, is inevitably discouraged. Week after week his work is returned to him heavily scored in blue pencil; what hope can he have of ever reducing his multitude of mistakes to a manageable few? He soon becomes convinced that

he is "no good at composition," and therefore unteachable. The child without hope is a hopeless task for the teacher.

But even apart from discouragement, the marking of every error without selection is a blunder in the technique of teaching. The object of indicating mistakes is to ensure that the child corrects them and learns from them. Confront a child with thirty errors of spelling, punctuation, grammar and style: what possibility is there that he can usefully deal with them? There is not the time. Suppose that we insist; if he is obedient and conscientious he will inevitably conceive a dislike for the work; if he is more resistant the work will be perfunctory. In either case we can hardly hope that he has learnt much from the "correction" of his mistakes.

In actual practice the result is only too frequently this: the teacher indicates all the errors, but has no means of ensuring that the child really learns from his mistakes.

What should we think of a tennis coach or woodwork instructor or teacher of music who insisted upon pointing out every one of his multitudinous errors to the beginner? The teacher of any practical skill knows very well that he must keep to those few points which the beginner can hope to correct, or at any rate to improve upon, at his stage of skill. Then when the learner has worked at these points for a time, he is allowed to pass on to others.

Once more we remind ourselves that written expression is a form of skill, and that much may be gained by adopting the methods of the teacher of games or

handicraft. I suggest that the teacher of language, so far from indicating every error, should deliberately confine himself to a few, but should make sure that the errors are corrected and the correct forms thoroughly practised; it is obviously far better to learn to spell two or three words a week than to try to deal with a dozen or twenty.

Of course, the teacher who accepts this principle must have the courage of his convictions, and must be ready to face the shocked disapproval of people who may happen to see the children's work and notice that errors have gone unchecked.

In addition to marking for correction by the individual pupil, the teacher should keep the class in mind, and should prepare for co-operative group-work in the classroom.

Here discretion is needed. There are certain errors which it is best to leave to the individual—sometimes because they are peculiar to him, sometimes because it is wise not to confuse children by bringing potential errors, which they themselves have not made, to their notice. On the other hand, there are occasionally common errors in grammar, punctuation or spelling which can profitably be discussed in class.

These are the mechanics of writing—the conventions that have to be learnt. But behind them there lies the more fundamental technique: the use of language as a means of expression, as a means of influencing the thought or action of some other person. Here we are no longer concerned with forms which are conventionally right or wrong. We are dealing with problems of skill—the use of particular

means to achieve a particular end. These are problems which most certainly can be discussed in class with profit.

A general scheme of procedure which has been found to work well in practice is this. The teacher regards his marking of books as a preparation for both individual and class work. For the former purpose he indicates errors, leaving the child to correct them, with help if necessary. For classwork he chooses one or two points of style, of the effective use of language, which either he decides upon beforehand, or discovers in the course of marking the work; points of difficulty common to a number of members of the class. Then from the work before him he selects a few examples to illustrate both the weakness in question and ways in which it has been overcome. Discussion in the classroom is confined to these points.

It will be seen that a plan of this kind enables the work to be more fully organised, and is likely to lead to more definite results than the casual discussion of points as they happen to have occurred in the written work. And if also, as we have suggested, the various themes have some common centre, then classroom discussion is likely to be more clearly directed and more fruitful.

In these ways, children may be gradually led to an understanding of the purpose and nature of everyday written language: that it should be intended to influence what other people do and think, and that therefore the writer needs to put himself imaginatively in the place of the reader, and present his ideas in logical order.

Chapter 4

EVERYDAY LITERATURE

I

WHY do we read? Books please; but this is not their only use: books inform. In the school it has been customary to make a strange distinction between the books that inform and the books that please. The books that inform are read for what they say, the books that please for the manner in which they say it. In a word, "text-books" are read for their content, "literature" mostly for its form and style.

The results of this are bad. From the beginning it brings an unreal attitude into the reading of literature. Children are not naturally interested in form and too early and too exclusive a preoccupation with it breeds an artificial and precocious echoing of the teacher's appreciation and criticisms. The study of form should enter the school as a study of one of the means by which the writer expresses what is in his mind.

If this is true of the books that please, it is no less true of the books that inform. Attention to form is a necessary part of all reading, not merely for its own sake, but because the study of form is a means by which criteria of truth, accuracy and logical thought can be developed in children. They need to be trained to read with critical understanding the books that inform and serve practical needs: everyday literature.

In this chapter we shall deal with the place of this practical or everyday literature in school, meaning by

practical, men's use of the printed word to influence other men in their immediate dealings with each other and with the world around them.

This work grows naturally out of that which we have discussed in the last chapter. There is no line to be drawn between practical literature and the letters and instructions written by the children themselves. Letters, prescriptions, guides, directories, time-tables, newspapers, handbooks—everything of the kind described by Lamb as " books which are no books "—these are what we mean by everyday literature. The books that the literary person would perhaps dismiss as no literature are precisely the books that need our first attention in the school.

II

Let us begin with the newspaper. It is a primary duty of the school to train its children to become efficient readers of the newspaper. By an efficient reader we mean one who is alive to all that the Press has to offer—and today it is a good deal—but who nevertheless is not misled by it or dragged at the heels of its suggestions. A definition sometimes given of an educated man is one who is not bamboozled by his newspaper. Perhaps a truer definition, one which takes account of the true worth of our daily journalism, would be : an educated man is one who knows how to read his newspaper.

Newspaper-reading is a universal habit, a habit not likely to diminish for a long time to come, though some of its functions may well be taken over by the

radio. For better or worse the Press is with us. As educators our choice for the adults of tomorrow does not lie between the newspaper and no newspaper, but between this newspaper and that, between good and bad newspapers. There is no question that the school can do a very good deal here and that it has a duty to do all it can.

Many teachers realise that good use may be made of a newspaper in the classroom, that it may be made to serve a great variety of purposes in the teaching of English. This, however, is not our only point here. We are thinking about the use and value of the newspaper in itself; we are asking, What is the value and function of the newspaper in everyday life for the ordinary citizen?

The newspaper sets out to influence the thoughts, feelings and acts of others. It does this first of all by informing, by giving news, then by expressing opinions and mostly by a subtle combination of news and views. It differs from other literature in that it is current; it is journalism, immediately reflecting the life of the day, and every aspect of this life. And it differs from other literature also in that it is not one person speaking to one, or even one to many, but is the current medium from many to many. Yet throughout its diversity, in its editorial comments and its correspondence, in its general and political news, in its law reports, financial, sport, literary, fashion and household columns, and its advertisements —wide though the range may be—it has but a single function: to influence thought, feeling and action. It is the conversation between Mr. and Mrs. Smith

multiplied a thousand times. The speakers are many ; Fleet Street is their mouthpiece, and their listeners in numberless homes.

News, views and advertisements ; the good journalist or the good advertiser will not be happy unless his readers think, feel and act as he intends them to do. No newspaper can be free of this intention. The result of our ordinary everyday reading of a newspaper is to set our minds working in a particular direction; to suggest emotions and attitudes, and ultimately to make us do things impelled by these suggestions. A newspaper is successful, no doubt, when its readers think as they are told to and buy what is advertised.

We may sum up the functions of a newspaper in this way : it informs and it moulds opinion. It is true that there are few newspapers, perhaps none, in which editorial policy fully permeates every item. Sometimes, on the contrary, there are obvious gaps between the views suggested in the leading articles and the news presented on other pages. As for the fashion notes, the sports page, the reviews of books and of plays, the advertisements—their outlook often seems to belong to another world from that of the editorial page. Yet it is nevertheless also true that when we compare one newspaper with another, a certain unity of thought and feeling becomes apparent in each. In this way the newspaper acts as one of the several powerful tendencies in modern life which are, for good or ill, transforming the nature of human society by bringing men into closer relation with each other. In a manner never before known in the history

of the world, huge masses of men are being given the same information, submitted to the same emotional suggestions and urged towards the same goals.

It becomes the duty of the school to train the habit of newspaper-reading into the direction of greatest benefit for both the individual and the community.

III

First of all the newspaper is the purveyor of news. Here the school can do two things for the growing child : we can show him how to learn from the newspaper what is going on in the world around him, and at the same time we can suggest that he must take up a critical attitude to what he reads.

The first task alone is well worth the teacher's attention. The academic tradition of the school leads us inevitably to deal with what is past, so that often one of the teacher's chief problems is how to make the dead live again. But in the newspaper we find the present : a host of events closely related to the life of the children as they live it today ; for even the more remote events, which at first sight may seem to have no connection with their lives, in reality have powerful influences upon their future as men and women in the world.

How to read the newspaper, how to find out what is going on : to reveal to the growing child how much may be learnt from a daily paper of the daily life of the world, to expand his interests so that they grow in an ever-widening circle about him—these are all things worth doing. We may take a paragraph, a letter or

even an advertisement from the newspaper, and ask : What does this mean ? Every teacher of English knows how fascinating it is to read a passage of prose, verse or the drama with a class and gradually help them to realise how much lies beneath the surface of what at first sight seemed bare of interest. We need not confine this pleasure to the study of the higher forms of literature. The columns of any newspaper also provide endless opportunities for work of this kind. And we need not make extravagant claims for its value, but we may at least believe that by making the child a more discerning reader of the newspaper we are at the same time helping to make him a more thoughtful citizen.

The second task in the reading of news is the development of a critical attitude. This does not, of course, mean an attitude of total disbelief. The man who accepts nothing is as unfortunate as the man who accepts everything. One of our chief aims in the school is to train judgment. This cannot be done in a month or a year, but by the time a child leaves school the habit of judgment should at any rate have began to grow in him.

The daily Press, with its numerous accounts of the same event, furnishes us with an unparalleled wealth of material for this work. One morning we choose examples from two or three newspapers and compare them in class. At once we have an exercise in criticism and comparison, but at the same time something more than that. It gradually becomes clear to the child that disbelief must be tempered with knowledge ; that prejudice in the reader may be as inimical to truth

as prejudice in the writer. In the end, perhaps, we begin to build up a balanced judgment, caution without obstinacy.

IV

The newspaper also offers us a great deal of practical information, both as regular items of news and as advertisements. The weather, foreign exchanges and other financial news, the movements of shipping, the prices of ordinary commodities—all this is information which appears regularly and which the growing boy or girl can be helped to use and understand. Work of this kind is again serving two purposes: it is training the child to read, to understand the written word, and it is training him to use the newspaper more efficiently, to see the practical significance of material which at first sight he would no doubt pass over as obviously dull and boring. In this way he may come to see how the newspaper is a motive power in the machinery of modern society.

Something of the same function is performed by many advertisements, national advertisements in particular. Through the Press the state makes the citizen aware of both his duties and his privileges. It acquaints him with the law, and calls upon him, both directly and by suggestion, to co-operate in enforcing it. In time of war, legal changes necessary for the welfare of the state may in this way be brought home to every citizen. If the radio is the ancient town crier now brought into every home, the newspaper is the ancient church-door notice now brought to every breakfast table.

Through advertisements also the newspaper reader is kept informed of the public services of which he may avail himself. In this direction, that of national advertising, there is indeed unlimited scope, the range of which we are only beginning to realise. The General Post Office, for instance, advertises its postal and telephone facilities; the British Medical Association familiarises the public with the work that a national medical service can do.

Even here it is not, of course, the business of the school merely to train suggestible citizens, ready to accept all that the state and national organisations offer them through the daily Press. Even here the teacher would naturally try to encourage a critical spirit among growing boys and girls and help them to realise that this is not the same thing as being merely "contrary." And when we take the next step and pass from national to private advertisements, the balance between acquiescence and criticism becomes still more delicate. So much is said about the evils of advertisement that perhaps it may be as well to point out that it frequently serves a valuable purpose. The claim of the advertiser that he informs the public about good goods is not wholly empty. And the task of the teacher is interesting precisely because it cannot be carried out simply by rule-of-thumb. He can aim neither at blind acceptance nor at blind rejection. He has to exercise thought and discretion in training his pupils both how to accept and how to reject.

The study of advertisements is also an excellent training in the use of language. It at once demands

attention to the things that matter most in reading: What does the writer intend? What means does he use? How far is he successful? These are the questions that boys and girls can be trained to ask; and as they learn to answer them for themselves they are surely developing critical power.

But perhaps nothing will give them so much insight into the nature of advertisements as to become advertisers themselves and draw up their own announcements. For work of this kind to be successful it must, we need hardly say, be as close to reality as possible. With this qualification, the whole range of advertisement may well be attempted—from the most straightforward announcement of a vacant situation to the most seductive attempt to induce a buyer to believe he wants what you have to sell.

V

The final function of a newspaper is to acquaint us with the attitudes, the points of view and the opinions of our contemporaries. To infer the bias of a newspaper from its news pages alone is no doubt a difficult task. But in the editorial page opinions are brought into the open and cease for the time being to take cover behind the smoke-screen of "news." Here the editor himself and those whom he allows to write for his paper tell us, if not what they think, at least what they would like us to think.

It is not easy to know how far the leaders of an ordinary newspaper are read. One suspects that a very large number of the habitual daily readers of a

paper are repelled by the dull-looking columns on the editorial page, and soon learn to forget that they even exist. For this very reason leaders provide an opportunity which the school ought not to miss. Leading articles are the clearest guides to that bias which we must expect to find in every newspaper, and indicate the attitude which we ought to take in reading the news. Thus for the growing boy or girl almost any leading article provides an excellent exercise in logical and literary analysis.

Perhaps it will be agreed that we should all read newspaper leaders and editorial articles critically, but it may well be doubted whether they are suitable material for schoolwork. Can we interest boys and girls, before and during their adolescent years, in reading-matter of this kind? Of course it is not easy: the teacher will have to go slowly and be content with the little that can be achieved. But the task is far from hopeless. We begin, of course, with what is likely to attract children of twelve or thirteen; any daily newspaper, in the course of any week, will provide at any rate one leader or general article on a topic which interests them. Sport, heroic achievements, events of national or world-wide importance—all these will give us examples.

Much depends on how far the teacher himself is really interested. He will find in the newspaper what he brings to it. His object must be to get his pupils to seize the importance of an article, to realise what it is about, and then to discuss it.

In the course of this work, all the questions which are significant in the study of the written word will

arise naturally: What is the writer saying? What does he want us to feel about it? How does he use his words so as to succeed in his purpose? Clearly this is an exercise in comprehension, in the intensive study of a text. In the school it is customary to use for this purpose extracts chosen from the works of great writers: the value of this, which cannot be gainsaid, we shall discuss later. But for the ordinary practical purposes of everyday life nothing can be better chosen than a passage of argument from a newspaper. If the passage is wisely selected it should have the incentive of immediate topical interest, it should provide material for critical study and should train the adult of the future to read his newspaper with discrimination.

In these ways a unity of aim will be preserved throughout the attention to language in the school. The basic problems of comprehension and expression will present themselves as urgently in reading a newspaper as in everyday speech on the one hand and in the study of literature on the other.

VI

Between the newspaper and literature stand books of practical information—books which Charles Lamb would certainly have dismissed as no books at all, but which all the same must play a very large part in the world of every day, and must constitute a good deal of the reading-matter of the intelligent ordinary man. When I say must, I am thinking of the necessities of our highly literate social life: we live, all of

us, more and more in a world where words are the important deeds, and it is only a narrow view of language, or a very misguided abuse of it, which need make us deplore this feature of our age.

It was never truer than it is to-day that language is an intrinsic element of our social organism. But it is equally true that a very large number of men and women—perhaps the majority—have not yet learned to avail themselves of the benefits of the printed word as an aid to the conduct of daily practical life. How to do things, how to get from place to place, what is happening and why it is happening—all the background of knowledge and interest that distinguishes the civilised from the uncivilised, the educated from the uneducated—all this is exactly what can be obtained from books, and by no other means so well.

Both in his leisure and in his business of earning a living, books can help the ordinary man. Books on the arts, on games and on hobbies, books on how to do and how to make things, technical books at varying levels of difficulty—these take up many shelves at the bookseller's. Has the school, however, recognised its responsibilities in this direction? The answer is only too certain. Here, as in every other field of the use of language, the school is hag-ridden by the tradition of the study of literature.

The school must take into its scope these books of information, which are the everyday literature of practical men. The objection may perhaps be made that special work directed to this end is hardly necessary—that these books may very well be understood without assistance from the school. This is

an objection not to be ignored, for it is most likely to come from the more thoughtful and conscientious teacher, who feels that the standards of education should be maintained, and that it is the chief duty of the school to safeguard for the rising generation all that is best in our heritage.

An ideal of this kind can only be commended : no system of education can be sound which fails to take this as one of its main aims. But, as the single goal of education, it falls short.

Once the teacher is ready to teach his boys and girls how to read everyday books, he will find it a task not unworthy of his skill. He will find that his pupils really need to be helped to deal with these books, and that the amount of mental energy that they need to use in reading straightforward prose is by no means negligible. He will, in fact, have to show them how to use books to solve their own problems, how to find the answers for themselves. And the field is very wide. Not only time-tables, directories, books of reference and guide-books, but books dealing with how to do and how to make things, and books on current affairs which touch on history, geography and economics, all come in here ; for all help us to conduct ourselves in the practical problems of our daily life.

The specialist teacher may very well protest that no man can possibly have the knowledge to deal with all these diverse subjects. This objection is partly well-founded, partly beside the point. It is well-founded in this : that certainly no one man can have all the knowledge to deal with such a large variety of

facts. It must always be for specialist teachers of particular subjects to attend to the facts.

The objection, however, is wide of the mark in this respect, that it is precisely because the teacher of English must inevitably be ignorant in some fields of knowledge that he can do good work here. To admit this quite honestly, and to set about the business of finding information in books, side by side with the children, is to provide an incentive rare enough in school. At present it is frequently no man's business to teach boys and girls how to read these books. This remains the task of the teacher of English—or, perhaps we should say, the teacher of language. It is something which none of his specialist colleagues is likely to attempt, the task of training children to read with understanding. This demands attention not only to a writer's meaning, but also to his intention; to his language and to the form into which he puts it.

Let us not despise the obvious and leave the child untrained in the use of practical books because they are too "simple" to deserve our attention. If they are really simple, they will not take up much of our time. But only too frequently we shall find that they ask both thought and energy. Even a book of reference is a book: here are words—What does the writer intend? What can we obtain from them? Has he done his work well? And when we come to books on current affairs, the problems are at once of the kind that education in language must take into account. Here is knowledge to be understood, intentions to be appraised, sentences which must be given their full

significance, arguments to be followed step by step, and at every step critically considered. The reader must use his imagination to reconstruct in his own fashion what was in the mind of the writer, and finally must formulate in his own terms what he has read. The teacher, therefore, who wishes to justify work of this kind will not have far to seek. Its practical application to daily life is obvious, but even those who believe that all schoolwork should discipline and train the mind may find something of this kind here no less than in the more traditional curriculum.

THE HIGHER USES OF LANGUAGE

Chapter 5

SCIENCE AND POETRY

I

SPEECH makes men into communities. A community is a group of men who commune or communicate with each other; that is, who share a common language.

It is through language, therefore, that a man is a member of a community; perhaps we ought to say a member, at the same moment, of three communities: the community-here-and-now, the community-there and the community-then. The community-here-and-now is the community actually around him—the community which, in a primitive society, is within reach of a man's voice. As civilisation enlarges the circle of communication, the community-here-and-now becomes the community-there and the community-then. A man's voice reaches out to the farthest confines of the earth—if not by waves of sound, then at least by marks made on paper; and again, through the same written word, his voice may be heard long after he himself is dead. Each man becomes a member of a community there, out in space; and of a community then, backwards and forwards in time.

In the last three chapters we have been thinking about language as it is used in the community-here-and-now, everyday language. We must now turn to its wider uses which, as they become wider, may also be said to become deeper and higher. When language is used so that its effects pass beyond the

limits of our ordinary daily life—spreading from the community-here-and-now to the community-there and the community-then—its function becomes deeper, for it expresses something more fundamental than our everyday practical needs; and also higher, when we feel that the themes of which it treats rise above these needs and have a lasting value for mankind.

With this we enter the world of literature, of books that we read not with any immediate practical intention, not in order to find out how to act here-and-now, but because the thoughts and feelings that they arouse have themselves a value for us.

In separating these books from everyday books and calling them literature we are giving a wide meaning to the word. Not only do we include verse, the essay, the novel and the drama, but history also comes in, and with it geography. By a short step this takes us on to science; from geography by way of biology we pass to chemistry and physics, perhaps even to mathematics. These are all literature in this sense, that in all of them language is used with the intention, not of causing people to act immediately, here-and-now, but in order to cause them to think or to feel, or both. Language is still the same kind of instrument that Mr. Smith used when he wanted his glasses; but now, instead of arousing thought and feeling as well as action, the last of these is held in abeyance while thought and feeling predominate.

However remote from practical everyday life a writer may be, whether he is a physicist or a poet, the essential characteristics of language remain in any language he may use. He thinks, and words help

him to think; he feels, and words enable him to express his feelings; he intends to stimulate others to think or to feel with him, and words are his means of communication. Every time a man writes he is attempting to solve a problem: the problem of communication. There is a goal before him, although he may not be wholly conscious of it; he intends his readers to do something, whether it be to act, to think or to feel, or all three. Language is only the means by which he hopes to solve his problem. What, therefore, matters most in reading and is the surest aid to understanding is to have some notion of what the writer intends. For the actual meaning of his words depends upon his intention.

The intentions of the poet and of the man of science are alike in one respect, that they call upon us to think or to feel rather than to act. In this sense poetry and physics are both literature, and it is essential for us in school not to forget this. Poetry, fiction, history, geography, science—all are literature in that they do not lead immediately to practical ends. In so far as they are alike they must be treated alike. But they are, of course, more different than alike—different in intention and different in language; different in language because they are different in intention. The intention comes first; the language is a tool made to serve this. Our main questions, then, are: What are the kinds of intention to be found in the various kinds of imaginative literature and the literature of science? How is language used in the service of these various intentions?

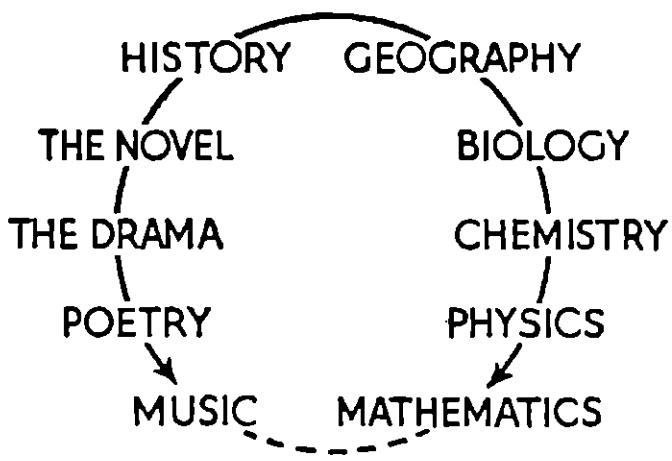
These are real problems for the teacher in school.

He must look at the whole range of literature and ask himself about each kind of writing: What does the writer intend? How does he use language in support of his intention?

II

These problems, if we were to consider them in all their implications, would obviously take us far afield. But they are also of immediate practical importance to the teacher. We must face them, and at any rate ask the questions that the teacher is likely to ask himself.

How are poetry, history, geography and physics related to each other? If we put poetry at one end of a range and physical science at the other, we can fit all other literature between them. Let us use one of our own prescriptions and draw a diagram. Poetry and physics approach each other in one sense, but are far apart in others; we can represent this by putting them both on the circumference of a circle, where if we go one way round they are far apart, and close together if we go the other way.



Half-way between poetry and science stand history and geography, both of which begin with the same

theme, although they deal with it in different ways. The theme of both is man in relation to the physical universe: history describes man in relation to the universe of time, the succession of events; geography describes man in relation to the universe of space, the world around him. As the centre of our scheme, then, we have man seen against a background of time and space, and from this centre we move towards poetry in one direction, towards science in the other.

History and geography are both, to some extent, science and art at the same time. They both lean towards art in so far as they describe, giving us an imagined picture of man in his world. Commonly, however, they do more than this; they attempt to make generalisations, sometimes even to establish laws; in so far as they do this they lean towards science. It is clear that, on the whole, history is more of an art, geography more of a science. For the historian is concerned to describe rather than to generalise, while the geographer is not satisfied to describe unless he can begin to establish some general principles. It is reasonable, then, in our diagram to recognise that history moves towards art while geography moves towards science.

The historian and the geographer have something of the same intention, they both describe; and to this extent they will use language in the same manner. In other respects their intentions are different, and to this extent they each have special forms and uses of language. They use, for instance, different technical terms; and while the historian sometimes shapes his language in the manner of a novelist or dramatist, the

geographer uses the diagrams and the formulæ of the man of science.

With history and geography as our starting-point, let us look at the intention of each of the other modes of writing. From history to the novel is no great step, for the historian, even when he is most scientific, is still sometimes impelled to make a reconstruction of the past, a picture in which the imaginative and sympathetic insight of a novelist will play its part. And the novelist, on his side of the gap, still reaches out towards the historian, when he brings in the real past as a background for his imagined men. But although the distance between the historian and the novelist is not very great, the gap is deep enough, for as soon as we reach the novel it is clear that we have left any scientific intention far behind. From the novel again we pass by an easy transition to the drama, which in turn joins, without any well-defined boundary, the realm of verse. As we move in this direction the intention of the writer changes. Description becomes more and more impregnated with feeling; less and less the theme matters; it is the work of art as a whole which engages our attention—its form at least as much as the topic which gave it birth. And when we reach lyrical poetry, language has lost most of the qualities of everyday language and has passed into the borderland of music.

Again let us start from our centre, this time in the direction of science. From geography we move readily to biology, and from biology, again, we pass through the science of biochemistry to chemistry; this in turn tends in some of its aspects to merge into

physics. By this time we have again left far behind any attempt to describe things as we know them by way of our senses in everyday life. Language, too, has again shed many of the qualities of everyday speech. It has become more and more technical, more subject to a rigid logic. Again we reach a point where the theme itself hardly matters, where it is the form of the work which engages our attention. Physics passes into mathematics, where language ceases to be language in the ordinary sense, and is replaced by the systematic manipulation of symbols.

In a word, as literature moves towards music and science towards mathematics, there is an increasing attention to form: it is the medium of expression itself which comes to occupy the centre of the stage. In music we attend to sounds and their manifold formal arrangements, while the theme—where it exists at all—is a succession of moods, with little or no necessary relation to the objects of our everyday world. In mathematics, again, we attend to symbols and their manifold formal arrangements, while the theme is reduced to a succession of reasoning processes, again with little or no necessary relation to the everyday world.

There is a basic affinity between music and mathematics—their absorption with form. We know that many mathematicians have been good musicians. No doubt the man who is gifted and trained to delight in the formal pattern of symbols may find something of the same pleasure in the formal pattern of sounds.

III

Let us now look a little more closely at these different modes of writing and ask how their varied intentions are related to the varied uses of language. Let us take a particular event and notice the varied forms of writing which it may occasion. In order to appreciate the problems of the child in school it is better to take examples from adult literature than from the books of the classroom. Where the ideas and the language have been brought down to the child's level we adults may fail to see any difficulties at all.

An event which has gathered writers round it in the course of time is the eruption of Vesuvius in A.D. 79, when Pompeii was destroyed.

First let the historian speak:

> In A.D. 79, Vesuvius, the volcanic forces of which had been slumbering for unknown ages, suddenly burst into violent eruption, which, while it carried devastation all around the beautiful gulf, buried the two cities of Herculaneum and Pompeii under dense beds of cinders and ashes.[1]

Now if we move from this in the direction of science, beginning with geography and passing by way of biology and chemistry to physics, we shall see what the different kinds of writing have each to say about this same event.

[1] From the *Encyclopædia Britannica*.

Geography :

Vesuvius is a volcano rising from the eastern margin of the Bay of Naples in Italy, about 7 miles E.S.E. of Naples, in the midst of a region which has been densely populated by a civilised community for more than twenty-five centuries. The height of the mountain varies from time to time within limits of several hundred feet, according to the effects of successive eruptions, but averages about 4,000 feet above sea-level.

Biology :

The phenomena attending asphyxia are as follows. As soon as the oxygen in the arterial blood, through exclusion of air, sinks below the normal, the respiratory movements grow deeper and at the same time more frequent; both the inspiratory and expiratory phases are exaggerated, the supplementary muscles are brought into play, and the breathing becomes hurried.

Chemistry :

A crystalline sublimate from the fumaroles on Vesuvius, containing ferric and alkaline chlorides $KCl.NH_4Cl.2FeCl_3 + 6H_2O$, is known as kremersite.

Physics :

C. Doelter, in some experiments on the melting-point of lava by means of an electric furnace, found that a Vesuvian lava softened at 1030° to 1060°, and acquired fluidity at 1080° to 1090°.

Returning to our centre, we begin once more with history and pass by way of dramatic fiction to poetry.

History :

Pliny, who was in command of the fleet, set out in the afternoon of the 24th of August to attempt to rescue people at Herculaneum, but came too late, and went to Stabiae, where he spent the night, and died the following morning, suffocated by the poisonous fumes which were exhaled from the earth.[1]

Dramatic Fiction :

" To the lion with the Egyptian ! "

With that cry up sprang thousands upon thousands ! They rushed from the heights—they poured down in the direction of the Egyptian. In despair, and in a terror which beat down even pride, he glanced his eyes over the rolling and rushing crowd—when, right above them, he beheld a strange and awful apparition.

He stretched his hand on high ; over his lofty brow and royal features there came an expression of unutterable solemnity and command.

" Behold ! " he shouted with a voice of thunder, which stilled the roar of the crowd ; " behold how the gods protect the guiltless ! The fires of the avenging Orcus burst forth against the false witness of my accusers ! "

The eyes of the crowd followed the gesture of the Egyptian, and beheld, with ineffable dismay, a

[1] All the examples are from the *Encyclopædia Britannica*.

vast vapour shooting from the summit of Vesuvius, in the form of a gigantic pine-tree; the trunk, blackness—the branches, fire—a fire that shifted and wavered in its hues every moment, now fiercely luminous, now of a dull intolerable glare!

Then there arose on high the universal shrieks of women; the men stared at each other, but were dumb. At that moment they felt the earth shake beneath their feet; the walls of the theatre trembled: and, beyond in the distance, they heard the crash of falling roofs; an instant more and the mountain-cloud seemed to roll towards them, dark and rapid, like a torrent; at the same time, it cast forth from its bosom a shower of ashes mixed with vast fragments of burning stone! Over the crushing vines,—over the desolate streets,—over the amphitheatre itself,—far and wide,—with many a mighty splash in the agitated sea,—fell that awful shower!

LYTTON: *The Last Days of Pompeii.*

Description in Verse:

The sea
Was lifted with strange tempest, and new fire
From earthquake-rifted mountains of bright snow
Shook its portentous hair beneath Heaven's frown;
Lightning and Inundation vexed the plains;
Blue thistles bloomed in cities; foodless toads
Within voluptuous chambers panting crawled.

SHELLEY: *Prometheus Unbound.*

Imagery in Verse:

And such appear'd in hue, as when the force
Of subterranean wind transports a hill

Torn from Pelorus, or the shatter'd side
Of thund'ring Etna, whose combustible
And fuell'd entrails thence conceiving fire,
Sublim'd with mineral fury, aid the winds,
And leave a singed bottom all involv'd
With stench and smoke; such resting found the sole
Of unblest feet.

MILTON: *Paradise Lost*, I.

Before we look at this range of writing in detail, let us remind ourselves of the main likenesses and differences between poetry and science. We find that there is this point of similarity, that language is throughout used with a social function, as a means of communication and as a means of influencing, if not the behaviour, then certainly the thoughts and feelings of others. The differences lie in what the writer intends to express. Both science and poetry are descriptive, but while scientific writing is descriptive of the real world, with that abstraction which is necessary for logical analysis and generalisation, poetry is descriptive of an imagined world, as a basis for the expression and arousal of emotion.

The resulting differences in the realm of language are vast. Language, almost by accident, has two forms: the spoken and the written. Poetry and science, from their natural characters, have each moved towards one of these two poles of language. The natural language of science is the written word: the visible symbol, for the graphic representation of ideas—seen at its purest in the diagrammatic formulæ

of mathematics. The natural language of poetry is the spoken word: the succession of sounds, for the embodiment of emotion—heard at its purest in the formal patterns of music.

IV

Language, we have said, has one important characteristic throughout the range of writing: it is social and communicative in function. Whether used by the man of science or by the poet, language always presupposes a reader or a listener.

This is obviously the case where a writer publishes his work. But sometimes a man of science or a poet does not write in order to publish. In the privacy of his own laboratory the physicist, for instance, may record his experiments and work out his generalisations purely for his own satisfaction, to please himself. The poet also, the novelist, even the dramatist, may sometimes seem to write without any audience in view.

But it is in no way stretching the facts to recognise, in all these cases, that the writer is quite truly his own audience. As soon as a poet writes his verses—even as soon as he thinks them—he has put his ideas into a form which inevitably will affect him as though he were a reader or a listener. He is his own audience, he enjoys or dislikes his own verse, and criticises himself. In the same way, the man of science, as soon as he uses words as a means of working out his ideas, or even only as a means of thinking them out, is certainly his own reader and critic. Language

enables him to apply the measuring-rod of rigid scientific reasoning to his own work. He communes with himself.

Thus we may say that both poetry and the literature of science are essentially communicative. The writer's audience is, first of all, himself; then, his contemporaries. But in each case he has a wider audience still: the man of science belongs to the community of science, the poet to the community of poetry. In these communities, as in all others, the writer gives as well as receives.

Perhaps this is more obvious of science than of poetry. It is clear that every man of science builds upon the work of his predecessors. The poet, however, may seem to stand in solitary independence of those who have gone before him. But this is never really so. Even Shakespeare and Milton owe something to their predecessors, and are in turn a permanent influence on those who follow them.

This first fact, that both science and poetry are essentially social and communicative, leaves its mark upon the use of language in both one and the other. In both poetry and science there are conventions of form and conventions in the use of words, conventions from which no subsequent worker can escape. To understand the place of any form of literature in the school, and to know how to deal with it, we must recognise the force of these conventions. The poet, the novelist, the historian, the biologist, the physicist, each uses language in a manner defined and determined by the nature of his theme, and by the field in which he works.

V

This may be seen throughout the passages which we have chosen as examples. All begin from the same starting-point, the eruption of Vesuvius, but in each case the real theme is shaped and limited by the writer's intention : each writer—poet, geographer or physicist—confines himself to a particular point of view, and draws our attention to particular features which are selected and abstracted from the event as a whole, the event as it actually occurred.

The geographer, we see, is concerned mainly with the description of the physical background of events : he sees man in relation to his physical environment. When he describes, therefore, he writes as a geographer; not, for instance, as a poet. His description is always on the verge of generalisation ; that is, his theme is not merely the one particular place in itself, but is concerned to compare this with other places. He fits Vesuvius into a framework, a measuring net which he casts over the face of the world. When he tells us that Vesuvius is 7 miles E.S.E. of Naples, and 4,000 feet above sea-level, he is tacitly bringing the mountain into relation with other places and comparing it with other mountains. At the same time, he is still interested in a particular event, the eruption of Vesuvius ; he is concerned both with the particular event and its general implications.

Comparison and generalisation are carried further as we move towards the sciences. What does the biologist, for instance, deal with ? He is no longer concerned with a particular event in itself, the erup-

tion of Vesuvius; he confines his attention to one limited aspect of what occurs—asphyxiation. At the same time he makes up for this narrowness of view by widening the range of his theme. In generalising, he tacitly compares this case of asphyxiation with every other case, wherever and whenever it may have happened, past, present or future. He makes a general statement about asphyxia which he intends to be true of all cases.

The language he uses fits this intention. He uses technical terms, such as "asphyxia" itself, "arterial" or "expiratory phase," all of them terms which can be logically defined, and which bring a large number of particular events under one point of view, making it possible for us to compare them. In doing this, something is lost and something gained. What is lost is our immediate contact with one particular event in itself—for instance, the eruption of Vesuvius in A.D. 79; what is gained is the power of dealing with a large number of different events in so far as they are alike.

When we come to chemistry and physics, exactly this same process is seen at work, but carried further still. The two passages we have chosen illustrate the manner in which the intention of the writer, and therefore his language, becomes more mathematical as we pass from chemistry to physics. In the sentence describing the composition of kremersite, the language is already technical enough. Almost every word is a technical term, that is to say, it may be exactly and logically defined. With terms such as "crystalline sublimate" and "ferric chloride" we pass beyond

the borderline of the mother tongue to what is virtually a special language ; and with the chemical formula we reach a system of symbols which verges on mathematics. If we compare this chemical description with the biological account of asphyxiation, we see that with chemistry there is an increasing exactness of statement ; the chemical terms can be more closely defined ; but at the same time there is a loss, in that the chemical statement is more abstract than the biological, more remote from the whole event, as it occurs at a definite time and place.

With physics we reach the final stage to which this attempt can go, without language becoming mathematics. Many statements in physics are, of course, purely mathematical. The passage we have chosen illustrates the transition ; the main gist of the statement is mathematics, but this is still embedded in words. We have almost reached that supreme kind of exactness which consists in making a statement in terms of quantity : the physicist speaks only of quantities and is concerned only with what can be measured. To gain this exactness he has had to abandon a great deal ; he has had to shed all the warm and living qualities of the actual event as it occurred and as we might witness it with all our senses.

VI

Having reached the utmost limits of language in one direction, let us now retrace our steps back to our starting-point, the eruption of Vesuvius, and notice the intentions of the writers as we move in the direc-

tion of poetry. Beginning with the historian, we find that he sets out, like the geographer, to be descriptive, and like him is concerned with human deeds and experiences in their physical background. But where the geographer is concerned with a background of space, the historian is concerned with a background of time. Like the geographer, too, he fixes the event into a network of measurement; but where the geographer connects this place with other places, the historian connects this particular event with others, before and after. Together with this difference there goes another. The geographer is concerned with generalisations somewhat more than with the particular event; the historian with the particular event somewhat more than with possible generalisations. In a word, the historian is still somewhat scientific, he is still concerned to make comparisons that may lead to general statements; but already he is moving off in the direction of the novel, the play and the poem, hinting at the exciting and dramatic events of the bravery and death of Pliny.

The language of the historian is in keeping with his intention. On the one hand, it has something of the exactness of science—he names the date and the place. On the other hand, it has something of the warmth and life that we find in the pages of fiction.

But fiction has an intention of its own, which differs from that of history. We see this at once if we look at the passage from Lytton, which has been chosen here to serve as an illustration of the novel and the drama at the same time. With this kind of writing we leave the scientific intention entirely behind. The

object of the writer is now to bring before us an imagined event, of which the centre is man, his experiences and his emotions. There is no longer any attempt at reasoned comparison and generalisation: our attention has been narrowed so that it is confined to a single man at a certain moment in a particular place. The writer does not call on us to consider any general laws, or truths, or principles; he hardly expects us to reason, only to feel. Emotion is aroused at the imagined spectacle of the man in his moment of terror; and with it emotion of another kind, from another source—the pleasure we obtain from the form of the story, the structure of events: in this instance the dramatic intervention of fate at the critical moment.

What the novelist or the dramatist brings before us may or may not have actually happened; this does not matter. The historical truth of what he describes, its relation to "real" events, is of no importance, and is quite apart from his intention. The effect of his work, as we have said, is to arouse emotion, and to this end he shapes both the story and the manner in which it is told.

His intention is, of course, reflected in his language. The words both excite our senses and arouse our feelings. Compare, for instance, what a physicist would say about the volcanic flames with Lytton's description: "a fire now fiercely luminous, now of a dull and dying red, that again blazed terrifically forth with intolerable glare." "Fiercely dying terrifically intolerable"—all these are removed as far as possible from scientific terms.

They cannot be defined logically, cannot be fitted into a framework of reasoning; their effect lies in the power they have to awaken sensations in us, to arouse us to vivid imagination, and to excite emotion.

As we pass from the novel and the drama to poetry, these contrasts with the scientific intention become more and more pronounced. The central topic, the "real" event, is increasingly subordinated to the arousal of feeling. In the passage from *Prometheus Unbound*, Shelley is not so much concerned with the scene itself as with the feelings excited by our imagination of it, while in the passage from Milton the immediate effects of the words are still further removed from the central object. Milton's theme is Satan; but instead of describing him his intention is to suggest one emotion after another.

It is true that to some extent the lines from *Prometheus Unbound* are intended to create for us a picture of an earthquake; but it is description for the sake of arousing sensations and emotions. For instance:

> fire
> From earthquake-rifted mountains of bright snow
> Shook its portentous hair beneath Heaven's frown.

In the first line, the words are certainly intended to appeal to the eye, to awaken imagination, but it is imagination strongly shot through with sensation; while the whole of the second line, with its powerfully personal imagery, is meant not so much to give us a picture as to arouse emotion, which Shelley in this way fuses with our feelings at the thought of an

earthquake. We are left, not with a clear description of an event, but with a sense of having been stirred by violent and confused feelings.

In the lines from Milton, the dominance of feeling is even more evident. They have been chosen here as an example of a kind of writing which is peculiar to imaginative literature: when an event is described not for its own sake, but with the effect of setting up a background of feeling appropriate to the poet's main theme. Milton's intention here is to picture Satan rousing himself upon the burning lake; what he does is to call to our mind the image of an earthquake. He does not give us a description, a delineation of the scene; he uses words so as to stir in us the feelings in concord with the spectacle of Satan rising up on the lake of fire. There are, in fact, many such passages in *Paradise Lost* in which the images exist only for the purpose of arousing feeling, and the arousal of feeling only for the purpose of shaping our attitude towards the persons of the story. This is the use of the "epic simile." We experience, not so much a succession of scenes as a train of emotions.

Once more we are passing beyond the bounds of language. We are well on our way to music, where the succession of sounds has little or no descriptive power, but an incomparable power of arousing feeling; not only the sounds, but the form of their arrangement, their pattern.

Our rapid glance at the whole range of human utterance, from mathematics to music, has suggested the varied intentions that may move writers to express themselves by means of symbols. We have seen

throughout that their use of language is social and communicative, having effect upon the thoughts and feelings of their readers—in poetry mainly the arousal of feeling, in science mainly the inception of reasoned thought. We have now to notice the final difference which we have mentioned: the reliance on the seen word in science and on the heard word in poetry.

VII

The art of the poet, approaching music as it does, tends to draw its emotional effects from the form of language, both from the form of the work as a whole, its general pattern, and from the actual sounds of the words, with all the undercurrents of emotion that these sounds carry with them. The man of science also makes good use both of the structure of his writing and of the forms of words themselves. But as his work approaches mathematics, he relies on the logical structure of words and the logic of their arrangement: he is less and less concerned with their emotional effects; in fact, he may be positively concerned to rid his language of emotion, to use symbols which have shed their connections with the confused welter of everyday life.

We can think of the contrast between them in this way. Both the poet and the man of science, in using language, use a medium intended in the first place to act as a means of intercourse in daily life, behaviour by which one man influences the behaviour of another —his thought, feeling and action. Now as we pass from everyday language to literature, the world of science and poetry, in that very act we leave behind

one feature of language: the writer is no longer concerned to influence the immediate practical actions of others. His concern is now with thought and feeling. Action, no doubt, may spring from thought and feeling, but this is not the writer's main concern, or even his concern at all.

Then as we pass towards science in one direction, or towards poetry in the other, we find in the former case the writer's concern is more and more with thought, reasoned thought; while in the latter case his concern is more and more with feeling. And corresponding to these two divergent intentions there follow two transformations of everyday speech. The scientist seizes upon, emphasises and enlarges the logical functions of language—its power of expressing and calling for reasoned thought; while the poet seizes upon and enlarges the emotional functions of language—its power of expressing and arousing feeling.

Now language, as we know it to-day, is made up of symbols which are both written and spoken. Its history in the race, and its history in each of us, of course gives the spoken word the priority; but for the average literate person of today it is true to say that the spoken and the written language are inseparably intertwined, and really work together as a single form of behaviour. In this system of symbols, with its written side and its spoken side, the sounds of words and their intonation retain, on the whole, the emotional functions, while the written forms and their grammatical arrangement retain, on the whole, the logical functions.

The natural supplement to the use of language in science is therefore mathematics and the use of diagrams; the natural supplements to its use in poetry are music, gesture, drama and dance.

VIII

These facts are important in school. A constant weakness of school work is that it tends to be meaningless to the pupil. He does his work without any clear aim; for him, only too frequently this kind of meaningless work is the sort of work one does in school. There is no doubt that sometimes this reflects a vagueness of aim in education itself.

In the present chapter we have glanced at literature in the wider sense, and have tried to give some answer to the question, How should we read these books? We have described the intentions that may move one writer or another in varied fields of work, and have considered the effects that these different intentions may have upon the use of language. Poetry and science, and all the forms of human activity that lie between, are often accepted in school without question, as ultimate things. It is even felt that they should not be analysed too closely, that by inquiring into their nature we may lose something of their value. There is truth in this, for children in school, at any rate. Children are too immature to be interested in questions of the kind we have been considering, and attempts to divert their attention from science or poetry to the nature of science or the nature of poetry may result only in the deepest boredom or distaste.

But these are certainly questions for the teacher; if he has tried to work out for himself the nature of the various kinds of writing that may be found in books he will be in a better position to suggest to his pupils how to approach them.

Two tasks, therefore, remain for him. He must introduce his children to as wide a range of literature as possible; it is very doubtful whether we can call a child literate if we have left him ignorant either of the experience of science on the one hand or of poetry on the other. That he shall be moved by poetry and awakened to the aims, the methods and the achievements of science—these are experiences possible even in early adolescence, if not before.

Today more than ever the broadcast of the written and of the spoken word provides the opportunity as well as the means. The teacher's first duty is to understand the nature of literature; his second, to help his children to understanding, at their own level.

In the next two chapters we consider fuller instances in detail, and discuss what may reasonably be attempted in school.

Chapter 6

THE ÆSTHETIC INTENTION

I

We come now to the problem of how to train children to read literature with understanding. This is not the same thing as the "appreciation of literature"; both these words—"appreciation" and "literature"—suggest a much narrower field than ours. We are excluding only those books which are meant to have an immediate effect upon practical action, the books that we have already discussed as everyday books. All other writing, all books that are intended to influence thought and feeling rather than action, now come under our survey. We are concerned not merely with the appreciation of literature, literature as an art, but with the study of all those books which touch the intellectual life of mankind.

Our principles in attempting to train children to read freely within this wide range might be put in this way:

The intention of a writer is determined by the field in which he works, and his use of language is determined by his intention.

The poet is successful when he causes us to imagine and to feel; the man of science when he causes us to observe and to reason.

The teacher is successful when he helps the writer to achieve his end.

If we try to put these principles into practice in the school, certain principles of treatment emerge. These can, of course, only be broad principles, to be modified

as they are applied to different kinds of writing and used with children at different levels. We may summarise them :

There are three things to be discovered about every piece of writing : What is the writer's intention ? How does he attempt to achieve it ? What is the relation between his intention and his language ?

It is the teacher's business to help the pupil to discover these things for himself. The methods that the teacher uses and the attitude that he suggests—these are determined by the intention of the writer and may indeed vary within the same book or even the same page.

Discussions of methods of teaching without actual examples are futile. But here we can give only a few examples. I shall therefore limit myself to prose, and to those kinds of prose that cover the middle of the range of literature, cutting off at one end such things as technical chemistry and physics, and at the other end verse and the drama. Even within these limits we are of course left with a wide range, extending from the prose that serves the purposes of exact science to the prose which approaches poetry.

I make no attempt to discuss here every problem of the study of prose literature in school. I shall only take samples at intervals within the range, typical samples, to illustrate this one major principle : that the most fruitful approach to literature and language is a balanced awareness of a writer's intention and of the means that he employs.

In this chapter and the next I propose to take examples of the varied kinds of prose writing : in the

present chapter history and imaginative prose, in the next the literature of science. Again I have chosen passages rather above the level of ordinary school work, because I believe that from dealing constantly with books suitable for children we tend to forget the real problems that may arise in reading. The passages which follow, therefore, are of the kind that the ordinary adult reader would have to read with attention; so that in considering them we may become aware of the difficulties that confront the child at his own level. Having realised the nature of the problems, it will be for the teacher to use his skill in dealing with them in the classroom.

To begin with history: what is the intention of the historian in general? It is, I think, twofold: to record and to generalise.

Everyone will agree that the historian records; it may seem more doubtful that he usually intends to generalise. I have therefore chosen as my example of historical writing a passage from Buckle, because he is perhaps the first historian to urge that history is a science; that, like geography, it is concerned with the study of the interaction of man and his physical environment. We begin with a knowledge of his intention: in his *History of Civilisation in England* (1857) he tells us that the function of the historian should be to show that

> the movements of nations are perfectly regular, and that, like all other movements they are solely

> determined by their antecedents. If he cannot do this, he is no historian. He may be an annalist, or a biographer, or a chronicler, but higher than that he cannot rise, unless he is imbued with that spirit of science which teaches, as an article of faith, the doctrine of uniform sequence ; in other words, the doctrine that certain events having already happened, certain other events corresponding to them will also happen.

There is no doubt that he himself made every effort to put these principles into practice. For seventeen years he spent ten hours a day at the task of collecting materials upon which to base the generalisations that run throughout his *History*.

But Buckle no more than any other historian confines himself to generalisations. The historian must give a coherent picture of events, he must record. Let us see how Buckle himself fares when he comes down to the historian's ordinary task of combining record with generalisation in making a survey of a period of time. Here is his summary of the reign of Charles II :

> If we look only at the characters of the rulers, and at their foreign policy, we must pronounce the reign of Charles II to be the worst that has ever been seen in England. If, on the other hand, we confine our observations to the laws which were passed, and to the principles which were established, we shall be obliged to confess that this same reign forms one of the brightest epochs in our national annals.

Politically and morally, there were to be found in the government all the elements of confusion, of weakness and of crime. The king himself was a mean and spiritless voluptuary, without the morals of a Christian, and almost without the feelings of a man. His ministers, with the exception of Clarendon, whom he hated for his virtues, had not one of the attributes of statesmen, and nearly all of them were pensioned by the crown of France. The weight of taxation was increased, while the security of the kingdom was diminished. By the forced surrender of the charters of the towns, our municipal rights were endangered. By shutting the exchequer, our national credit was destroyed. Though immense sums were spent in maintaining our naval and military power, we were left so defenceless, that when a war broke out, which had long been preparing, we seemed suddenly to be taken by surprise. Such was the miserable incapacity of the government, that the fleets of Holland were able, not only to ride triumphant around our coasts, but to sail up the Thames, attack our arsenals, burn our ships, and insult the metropolis of England.

Yet, notwithstanding all these things, it is an undoubted fact, that in this same reign of Charles II more steps were taken in the right direction than had been taken, in any period of equal length, during the twelve centuries we had occupied the soil of Britain. By the mere force of that intellectual movement, which was unwittingly supported by the crown, there were effected, in the

course of a few years, reforms which changed the face of society.

BUCKLE: *History*, Vol. I.

Buckle begins with a generalisation, which he supports in the second paragraph by a description of the political and moral character of Charles and in the third by contrasting this with the intellectual progress of the period. The opening generalisation is stated soberly enough; but when we come to Buckle's description of Charles we find that too warm an interest in his theme has put the champion of strict science somewhat off his guard. "Mean and spiritless voluptuary," for instance, is a phrase of a kind not often found in a treatise on physics or a text-book of botany.

We know what Buckle intends to do: he sets out to be impartial, to make only those generalisations that are scientific; but it is clear that other influences have come in to turn him aside from the strict path. The truth is that his own outlook upon life and his code of morals made him unsympathetic towards the liveliness of Charles's court; on the other hand, he was deeply interested in scientific and intellectual progress. As a result he was impelled to bring the character of Charles into the strongest possible contrast with the intellectual advance of his day, and at the same time to deny any merit in this advance to Charles himself—even his patronage of the Royal Society is to be called "unwitting."

This is a good example of how the intention of a writer may not altogether be within his control.

Buckle's intention is to make scientific generalisations, but the generalisations that he makes here are determined not simply by reasoning, but rather by feelings of which he himself was probably hardly conscious.

There is not much doubt that historical generalisations, from their very nature, must always tend to be influenced in this way. The historical generalisation is essentially different from the scientific generalisation. The historical generalisation is anchored to time and place; this is what we mean when we call it historical. Now while we may very well be impersonal about general principles, our feelings are engaged as soon as we begin to think about particular events. Buckle deals with Charles II at a certain moment of time, at a certain place, here in England. If he were to cut his generalisation loose from time and place, if he were to state how kings in general behave in given circumstances, then he would be attempting a scientific generalisation, a universal law, and it would perhaps be easy for him to be impersonal.

But he would no longer be writing history. His work would have become science. The nature of history is just this, that it concerns itself with events at a definite time and place. And in this there lies the dilemma of the historian. On the one hand it is not enough for him to present the crude record of events chronologically set down; he must show the general tendencies of human change. On the other hand, it is not enough to present generalisations abstracted from events: when we read him we want to know what actually happened.

The historian, then, is something of a poet as well

as something of a man of science. Like the poet he describes with feeling; like the scientist he generalises. But his descriptions are different from those of the poet in that they are anchored to facts; they are different from those of the man of science in that feeling inevitably colours and sharpens them.

Buckle's intentions, and his difficulties, are both clearly reflected in his language. There is no need to emphasise the point. "All the elements of confusion, of weakness and of crime . morals of a Christian . feelings of a man . miserable incapacity ride triumphant . insult the metropolis of England"—every one of these phrases is something more than a record of events: it is strongly expressive of the writer's own feeling, and likely to awaken feeling in the reader. The structure of the passage as a whole has a similar effect. In the middle paragraph the condemnation of Charles is remorselessly piled up, so that the quiet statement in the final paragraph shall come in with the full force of contrast.

These are devices of the writer of imaginative literature—æsthetic devices. Although Buckle in some measure gives us a scientific reconstruction of events, inevitably he must also give us something of the imaginative picture of the novelist. Between these two extremes the historian must always move. The best historian is he whose work is a synthesis of reason and imagination.

What is the function of the reader in all this? In reading poetry he is called upon to imagine and to feel; in reading science, to observe and to reason; in reading history, both. If the historian does not

succeed in arousing an emotional attitude in his readers towards his subjects, then certainly he has failed. But the matter does not end there. The historian also calls upon his readers to reason, to reach general truths by thinking about the facts. Now whenever we try to generalise, in science or in history, there is always the danger of personal bias, whether intellectual or emotional. The method of science is to reach objective truths by comparing the observations of many different men, in this way limiting the effect of personal errors in observation and inference. In history the corresponding danger is the effect of personal feeling ; and here, too, if we hope to arrive at the truth we must use something of the method of science. We must compare one historian with another. Certainly we must treat the historian as an artist by our willingness to see the past through his eyes. But we must also treat him as a man of science by taking his view only as one of many.

This makes the aim of the teacher also clear. By suggestion he must help history to make its effect upon the young reader, so that he is thrilled by the chronicles of bygone days. But as the child grows up he must gradually be led to see with what care the historian uses observation to build up a picture of the past. Then, in so far as a historian is a man of science, he invites us to be critical. The pupil may then be helped to realise that no historian can be fully impersonal and that the careful comparison of one with another is the inescapable task of those who value the truth.

The teacher who accepts these principles will devise

methods for himself. Two aims will always remain essential. The pupil must learn to consider what is the intention of each historian that he reads, and to examine the historian's use of language in the pursuit of this intention.

III

History is never far removed from fiction. Let us pass the dividing line and ask, What is the work of the novelist? What are his intentions, conscious and unconscious, likely to be?

Clearly, like the historian, he is out to tell a story, to narrate a sequence of events, to describe human action against a background of time and place. But in one very important way he is different from the historian. He does not mean to generalise, or to establish scientific truths. He demands an interest in his story, as a story. Instead of reasoning applied to real events of the past, feeling is aroused by imagined events, which need never have occurred at all.

So much is clear; but the pattern of a novelist's intention is not quite as simple as this. What we call the novel covers a wide range of writing. At the one end stands the satirist or the Utopian, who writes a parable in which overtly or tacitly he points to the weaknesses of mankind. At the other end stands the pure novelist who tells a story for its own sake. Many novels, of course, have more than one intention.

Let us take some examples and see how things work out. I have chosen as my first instance a passage

from the best-known work of satirical fiction in English—*Gulliver's Travels*—a passage which is also a good example of straightforward narrative.

> On the fifth of November, which was the beginning of summer in those parts, the weather being very hazy, the seamen spied a rock within half a cable's length of the ship; but the wind was so strong that we were driven directly upon it, and immediately split. Six of the crew, of whom I was one, having let down the boat into the sea, made a shift to get clear of the ship and rock. We rowed, by my computation, about three leagues, till we were able to work no longer, being already spent with labour while we were in the ship. We therefore trusted ourselves to the mercy of the waves, and in about half an hour the boat was overset by a sudden flurry from the north. What became of my companions in the boat, as well as of those who escaped on the rock, or were left in the vessel, I cannot tell; but conclude they were all lost.
>
> For my own part, I swam as fortune directed me, and was pushed forward by wind and tide. I often let my legs drop, and could feel no bottom; but when I was almost gone, and able to struggle no longer, I found myself within my depth; and by this time the storm was much abated. The declivity was so small that I walked near a mile before I got to the shore, which I conjectured was about eight o'clock in the evening. I then advanced forward near half a mile, but could not dis-

cover any sign of houses or inhabitants; at least, I was in so weak a condition that I did not observe them. I was extremely tired, and with that, and the heat of the weather, and about half a pint of brandy that I drank as I left the ship, I found myself much inclined to sleep. I lay down on the grass, which was very short and soft, where I slept sounder than I ever remembered to have done in my life, and as I reckoned, above nine hours; for when I awakened it was just daylight. I attempted to rise, but was not able to stir; for, as I happened to lie on my back, I found my legs and arms were strongly fastened on each side to the ground; and my hair, which was long and thick, tied down in the same manner. I likewise felt several slender ligatures across my body, from my arm-pits to my thighs. I could only look upwards; the sun began to grow hot, and the light offended my eyes. I heard a confused noise about me; but in the posture I lay I could see nothing except the sky.

In a little time I felt something alive moving on my left leg, which advancing gently forward over my breast came almost up to my chin; when, bending my eyes downward as much as I could, I perceived it to be a human creature not above six inches high, with a bow and arrow in his hands and a quiver at his back. In the meantime I felt at least forty more of the same kind (as I conjectured) following the first. I was in the utmost astonishment, and roared so loud that they all ran back in a fright; and some of them, as I was afterwards told,

> were hurt by the falls they got by leaping from my sides upon the ground.
>
> SWIFT: *Gulliver's Travels.*

The first and obvious intention of this is to tell a story, and no story could be plainer. But the story, we know, does not stand by itself; it is a prelude to satire. What we have to notice therefore is how far this ulterior purpose of Swift's is served by the simple story that he tells, and how far this intention is reflected in his use of language.

Swift means to satirise mankind by describing an imaginary country; his first task is to get us there, to lead us by imperceptible steps into the Land of Lilliput, so that those who have taken up the book as a story of adventure will be enticed to read further, and even those who expect satire will be charmed by the promise of romance. Before we know where we are we find ourselves firmly landed in Lilliput. Like Gulliver himself we have walked ashore without noticing anything out of the ordinary; the strangeness of the land is only gradually brought home to us. The transition from the everyday world is so gentle that we do not perceive it; it is only when we look about us that we realise that we have fallen into a land of fantasy.

And Swift uses his words in such a way as to carry us with him step by step. It is all disarming: we are made to see everything in the simple way that Gulliver himself saw it. But at the same time, mostly without realising it, we are given one hint and then another of what is coming.

> The declivity was so small that I walked near a mile before I got to the shore . . I could not discover any signs of houses or inhabitants, at least I was in so weak a condition that I did not observe them I lay down on the grass, which was very short and soft I heard a confused noise about me I felt something alive moving on my left leg I perceived it to be a human creature not six inches high.

What is the effect of all this? There is not much doubt that as we move with Swift into Lilliput our critical alertness is, for the moment, stilled. He makes no attempt to prove anything, by the process of logic and reason. But he makes us live through experiences, and by these experiences our minds are worked upon so that in the end we see as he wishes us to see.

He asks us to follow him imaginatively into a series of events; not to abstract from them, not to reason about them, but to live them. His language needs therefore no more for its comprehension than the common experiences that have befallen all men—his story is as far removed as possible from the specialised experiences of the man of science and his language from the technical terms which express them.

> I could only look upwards; the sun began to grow hot, and the light offended my eyes. I heard a confused noise about me; but in the posture I lay I could see nothing except the sky. In a little time I felt something alive moving on my left leg.

On common experiences such as these the writer of fiction builds his imaginative structure, and through them he appeals to our memories of personal experience, and causes us to enter an imagined life. This is an essential feature of his intention, and we for our part are willing to accept it as an end in itself. We ask no more of the novelist than that he should give us a full and vivid experience; we enjoy a story when we are swept off our feet into an imagined world, and for the time being, live there.

But in this case, we know, there is a further intention; when we have finished Swift's book we are left with an impression of his views of mankind in general. All satire is, in a sense, generalisation about human nature. It is then reasonable to ask what is the difference between generalisation of this kind, which is a part of fiction, and that generalisation which we have found to be a part of history. Our example from Swift suggests an answer. There is a difference, first, in the nature of the generalisation itself; and, secondly, in the way in which it is brought home to us.

The difference in the nature of the generalisation is this, that Swift's reflections are inevitably personal while the historian's generalisations aim at being impersonal. Swift's views are expressive of himself, they spring from emotion as much as from reason. The King of Brobdingnag tells us, for example, "that whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground, where only one grew before, would deserve better of mankind, and do more essential service to his

country, than the whole race of politicians put together."

This is certainly the kind of generalisation a historian might occasionally make ; but if he did so, we should reasonably expect him to bring forward the evidence of events to support it. But the satirist need not ; the generalisations implied in his story are personal opinions.

This difference is also reflected in the way in which the generalisations are brought home to us. The historian, as far as he is able, proves his generalisations; the writer of fiction suggests them. Suggestion, we know, is often more potent than proof. In fiction we are made to move through a succession of imagined events, and we seem to draw our " own " conclusions. The language of a satirist such as Swift will be powerful in suggesting to us his attitude and the views that he intends us to accept.

What is the reader's part in all this ? He must, I think, acquiesce ; at the same time he must be ready to resist. To enjoy the story as a story he must acquiesce ; to make the most of the satire he should be ready to resist. He must acquiesce while the novelist leads him on, he must accept the suggestions of the imagined and even fantastic events with which the writer allures him. If he is not willing to follow the novelist where he leads, so much the less will the novel mean to him.

But as a reader of satire he must keep his independence. The satirist suggests general truths about mankind in the guise of reflections, opinions, comments. It is for the reader also to reflect, generalise

and comment. When the writer ceases to be the showman and becomes the preacher—either in his own person or through the mouth of one of his characters—then it is time for his audience to sit back for a moment and become critical.

The task of the teacher is therefore again clear. By suggestion, by an occasional remark and sometimes by more formal treatment he may smooth the way of his younger pupils into the world that the story-teller creates. This alone may sometimes be all that he can hope to achieve : to lead the children to experience the mere pleasure of prose fiction, to lead them step by step from what they choose to read to what he would like them to read. And he can only count himself successful on the day when they begin to choose quite freely what he would wish them to choose.

He may have to stop short here ; to spend all his skill in making it possible for them to enjoy better fiction. Only when he is sure that they are on the road can he hope to take the next step. Now he can begin to draw their attention occasionally to the use of words and the manner in which these express the writer's creative intention. And when at last he has helped to make them free of the novelist's world, then perhaps he may begin to suggest that they should take up a critical attitude towards his opinions. A writer's comments upon life, his reflections upon the weaknesses of mankind, invite a critical scrutiny and should be made to prove their worth in the light of reason.

IV

Our example from Gulliver, having more than the simple intention of telling a story, is nearer to history than most fiction. Let us now take an example where the novelist has no other intention than to tell his story. I have chosen a page from Dickens, *A Tale of Two Cities*, because while it is pure fiction it is related to a historical theme and therefore will help once again to bring out the likeness and the difference between the novelist and the historian.

> "Come then!" cried Defarge, in a resounding voice. "Patriots and friends, we are ready! The Bastille!"
>
> With a roar that sounded as if all the breath in France had been shaped into the detested word, the living sea rose, wave on wave, depth on depth, and overflowed the city to that point. Alarm bells ringing, drums beating, the sea raging and thundering on its new beach, the attack begun.
>
> Deep ditches, double drawbridge, massive stone walls, eight great towers, cannon, muskets, fire and smoke. Through the fire and through the smoke —in the fire and in the smoke, for the sea cast him up against a cannon, and on the instant he became a cannonier—Defarge of the wine-shop worked like a manful soldier. Two fierce hours.
>
> Deep ditch, single drawbridge, massive stone walls, eight great towers, cannon, muskets, fire and smoke. One drawbridge down! "Work, comrades all, work! Work, Jacques One, Jacques

Two, Jacques Two Thousand, Jacques Five and Twenty Thousand; in the name of all the Angels or the Devils—which you prefer—work!" Thus Defarge of the wine-shop, still at his gun, which had long grown hot.

"To me, women!" cried madame his wife. "What! We can kill as well as the men when the place is taken!" And to her, with a shrill thirsty cry, trooping women variously armed, but all armed alike in hunger and revenge.

Cannon, muskets, fire and smoke; but, still the deep ditch, the single drawbridge, the massive stone walls, and the eight great towers. Slight displacements of the raging sea, made by the falling wounded. Flashing weapons, blazing torches, smoking wagon loads of wet straw, hard work at the neighbouring barricades in all directions, shrieks, volleys, execrations, bravery without stint, boom, crash and rattle, and the furious sounding of the living sea; but still the deep ditch, and the single drawbridge, and the massive stone walls, and the eight great towers, and still Defarge of the wine-shop at his gun, grown doubly hot by the service of four fierce hours.

A white flag from within the fortress, and a parley —this dimly perceptible through the raging storm, nothing audible in it—suddenly the sea rose immeasurably wider and higher, and swept Defarge of the wine-shop over the lowered drawbridge, past the massive stone walls, in among the eight great towers, surrendered!

DICKENS: *A Tale of Two Cities.*

What is the intention of this passage? First of all it sets out to create a clear and vivid impression of the attack on the Bastille. This in itself is not very different from the purpose of a historian such as Carlyle—whose *French Revolution* Dickens knew and used. But there are at least two marked differences between Dickens and a historian. The novelist is concerned with the fortunes of individual human beings, the Defarges for instance, and although these must be true to life they need not be true to history. Further, their creator is not concerned to use the events he describes as a basis for generalisations.

A novel must be true to life but need not be true to history. What does this mean? It clearly does not mean that the historian relates only what has actually happened, while the novelist invents only what might have happened. For many of the events in *A Tale of Two Cities* are historically true. The difference is one of intention and therefore of approach. The historian selects from actual events in order to record them and generalise from them; the novelist, when he deals with actual events, selects from them not in order to record them but in order to relive them.

Dickens himself, as it happens, has given us a glimpse of his intention and of his manner of writing. In the preface to this novel, he says, speaking of the time when he first hit upon the idea of the story:

> A strong desire was upon me then, to embody it in my own person, and I traced out in my fancy the state of mind of an observant spectator. Throughout its execution, it has

> had complete possession of me; I have so far verified what is done and suffered in these pages, as that I have done and suffered it all myself.

Here we have it. The story is a re-creation of personal experience, an attempt to live through a series of events as though the author himself has personally experienced them. Such history as we find here is meant as a background for the theme: the characters and fortunes of a handful of men and women. For Dickens—and for us if we read him in the spirit in which he writes—the French Revolution is less important than the sorrows of Lucie Manette or the self-sacrifice of Sydney Carton.

This does not mean that Dickens ignores history. On the contrary, history itself is one of the persons of his play. History takes a part in the dramatic situation; Dickens tells us a story not only of conflicts between man and man, but also of the conflict of man with the vast background of events. In historical writing, on the other hand, if the drama of a man himself, in person, is allowed to appear, in the end it is subordinated to broad movements and to generalisations. But in a novel, it is the experiences of individual men which form the theme, and all else is subordinated to this.

These personal experiences of other men are known to Dickens not because he has read diaries or letters in which they are minutely recorded, but because he himself has created them. By suffering it all himself, as he says, he brings men and women to life in his pages; and they can only be brought to life for his

reader if he too is made to suffer it all himself. The writer of fiction, as we saw in our example from Swift, must make his readers relive the experiences of his imagined persons.

What, then, is the relation between the story and real life? The passage before us, because it has a historical background, will test our answer. And here, at any rate, it is clear that the novelist is not concerned with historical events as historical events. These events certainly form part of the crude material with which he begins, but he uses them for his own purposes—he gives them, if need be, a new sequence, a new order and harmony. He takes just those fragments of reality which are fit for his purpose and shapes them into a mosaic of his own pattern. This pattern is expressive of his mind; its meaning may be satirical as in *Gulliver* or tragic as in *Jude the Obscure*, it may express the writer's desire that things shall be other than they are, or a moment of exhilaration when he finds things as he would like them to be. His mind fashions for itself a unity out of the discord of intractable real events. Things happen day by day and there is nothing to show why they happen so. But in a novel all the events work together under the stress of one central idea. Thus we judge a novel, like any other work of art, not by its correspondence to reality, but by the inner coherence of its parts as a whole, expressive of a unity in the artist's mind.

The mind of the novelist permeates his work, and he expresses his mind in his own fashion. This is not the fashion of the satirist, who suggests general reflections, or that of the historian, who builds up

generalisations. The satirist moves his men as puppets, the historian must follow the march of real events. The novelist both creates and yet follows the lead of his own creation. He lets his work speak for him; his work as a whole is an embodiment of his ideas, a concrete living representation of them. These ideas, therefore, are not to be lifted out of his work or torn from their context; if this is done, they become something different, something that the novelist has not intended.

How is the novelist's intention reflected in his use of language? Both the pattern of his writing and the actual words that he uses have this effect: to cause us to read with an active imagination. Dickens makes no attempt to present a clear sequence of events; he suggests, he arouses a state of mind in us, and it is for us to re-create imaginatively what he omits as well as what he describes. This is as far removed as possible from the scientific historian's attempt to make an accurate record of the past. The novelist's words are not used in an exact fashion, as a basis for logical thought; they are used suggestively, as a stimulus to imagination. For instance, the novelist uses numbers; he says "eight great towers"; but the number is of no importance to us. It would make no difference to his meaning—his æsthetic meaning—if he had said ten. And when Dickens says "Jacques Five and Twenty Thousand" he does not mean twenty-five thousand as a historian or a scientist might mean it.

As for the actual descriptive words that he uses—these do not define, they hardly even describe in an objective way. Their intention is to cause us to live,

in imagination, through a series of events, and they do this by arousing intimate bodily sensations in us, bringing to life the impressions made on our senses by our own past experiences. Something of this kind we have already seen in Swift's Lilliputian language. Here in Dickens there is an appeal to imagination of sounds—" ringing, beating, raging, thundering . . shrieks, volleys, execrations . boom, smash and rattle, and the furious sounding of the living sea." There is even an appeal to a subtle sense of weight in the repetition of " massive." The novelist's use of words serves his intention of causing us to relive the scenes of his story.

From all this the task of the teacher again becomes clear. Since the novelist uses suggestion as his main instrument, the teacher too must make use of the same means. The teacher himself may for his own purposes analyse the novelist's intention and his devices ; must, in fact, do so if he is to know what he is about in the classroom. A teacher blindly fumbling with what he feels is striking, vivid and true, without understanding how or why, can only by the greatest luck hope to lead his pupils to enjoyment and discrimination. The teacher must understand intention and technique.

But this does not mean that the children, too, must analyse. Especially in the early stages, their awareness of the novelist's intention and of his skill may have to be awakened by quite other means than by analysis. The teacher will use suggestion, perhaps mainly through the power of the spoken word in rendering chosen passages—one might add that a reader can

only interpret with effect if he has first achieved an understanding of the writer's skill.

But as enjoyment and experience grow, even the children may begin to develop a conscious discrimination: they may begin to consider what the novelist is aiming at; the parts played by situation, character and background, and the use of language in relation to these. Even now, the teacher may call himself successful only when the novelist has been helped to do his work, when nothing has been allowed to come between the novel and the reader. The study of language, the study of form, the analysis of character —all these have no place unless they contribute to this main end: the enjoyment of the novel. And they will not contribute to this main end unless they are truly subordinated to it. They must be so absorbed by the reader that they lie below the surface of his thought and are so naturally held in check that they cease to obtrude themselves between his eye and the page before him. The task of the teacher is clear; the test of his skill is whether the pupil, as a result of attention to the means employed by a writer, reads him with sharper apprehension and understanding.

V

The passage from Dickens brings out the point that the novelist's story is conceived and presented against a background both of time and of place. But it is not simply that the actors move in front of a moveless backcloth; it is rather that they live within a living scene, which itself performs an important part in their play. Even the non-human world, the world of

rocks and trees and animals, may be one of the persons of the drama.

What is the intention of the novelist in introducing description into his novel? Mr. Aldous Huxley suggests that he does it to amuse himself at the expense of his readers.

> Few things are more profoundly boring and unprofitable than literary descriptions. For the writer, it is true, there is a certain amusement to be derived from the hunt for the apt expressive words. Carried away by the excitement of the chase he dashes on, regardless of the poor readers who follow toilsomely through his stiff and clayey pages like the runners at the tail of a hunt, seeing nothing of the fun. All writers are also readers—though perhaps I should make exceptions in favour of a few of my colleagues who make a speciality of native wood-notes—and must therefore know how dreary description is. But that does not prevent them from inflicting upon others all that they themselves have suffered. Indeed I sometimes think that some authors must write as they do purely out of a desire for revenge.
>
> ALDOUS HUXLEY: *Those Barren Leaves.*

It is true that there is a good deal of descriptive writing which can only be explained by a paradox at least as extravagant as this. At the same time it reminds us of what the function of description in narrative should be: to emphasise, illuminate and bring into relief the action of the story, the implica-

tions of character and of plot. It is by these criteria that we judge of the success of descriptive writing in a novel.

A passage from Hardy will illustrate the point :

> It was a long low cottage with a hipped roof of thatch, having dormer windows breaking up into the eaves, a chimney standing in the middle of the ridge and another at the further end. The window-shutters were not yet closed, and the fire and candle-light within radiated forth upon the thick bushes of box and laurestinus growing in clumps outside, and upon the bare boughs of several codlin trees hanging about in various distorted shapes, the result of early training as espaliers combined with careless climbing into their boughs in later years. The walls of the dwelling were for the most part covered with creepers, though these were rather beaten back from the doorway—a feature which was worn and scratched by much passing in and out, giving it by day the appearance of an old keyhole. Light streamed in through the cracks and joints of a wooden shed at the end of the cottage, a sight which nourished a fancy that the purpose of the erection must be rather to veil bright attractions than to shelter unsightly necessaries. The noise of a beetle and wedges and the splintering of wood was periodically heard from this direction; and at some little distance from the house a steady regular munching and the occasional scurr of a rope betokened a stable and horses feeding within it.
>
> HARDY : *Under the Greenwood Tree.*

This is a good example, because at first sight it would seem to have no bearing upon the events of the story. It might have been written simply as a picture of a cottage, the kind of description that arouses Huxley's irony.

But what is really Hardy's intention? What is he trying to do with this picture, and how is it related to the novel in which it occurs? In a few lines he gives us an impression of the cottage, a picture growing in clearness just as a mist thins out and leaves the landscape open before us. He does not give us a "word-picture," a list of everything that is there; he selects. And we can be sure, in this case at any rate, that lack of detail is not due to lack of observation or knowledge: Hardy was an architect by profession. His difficulty would be to omit; we can be sure that if he leaves things out he does so with intention.

Let us notice, then, how his selection is effective. The first sentence gives us a general impression of the cottage and its atmosphere; hipped, thatched, with dormer windows and eaves. He brings us to a particular spot from which to view the whole place; from where we stand, one of the chimneys is at the further end of the cottage.

Now we begin to take in the scene more closely. There is warmth and colour in the picture; we notice one sign after another of human habitation; we begin to think about the people who might live here. Our curiosity is sharpened by the odd noises that we hear coming from within the cottage; and so the last few words of the description bring us to the point where

we are ready to enter the cottage and see what is going on there.

The experience of reading this description is something quite different from looking at a picture which hangs there, static, on the wall. We witness the scene, it becomes alive for us. And there is no doubt that this happens because Hardy is successful in arousing imagination and setting it to work. Once more the reader must bring an active mind to what he reads. Hardy does not simply add one detail to another, leaving the reader to fit the parts together like the pieces of a jig-saw puzzle. The scene comes to life in us when we add something of ourselves to the writer's fragmentary suggestions. A hint of line and colour and a few half-heard sounds grow vivid when the reader's imagination reaches out to them and weaves them into its own pattern.

Hardy demands of each of us that we should feel our way into the picture. He calls on us to revive our own past experiences—sights and sounds, muscular sensations, feelings and thoughts. Notice the effect of such words as "thatched," "eaves" and "dormer." These are not simply the names of architectural features. As technical terms they have, no doubt, their clearly defined meanings. But when we read them in their context here, their effect is of a different kind. They may or may not call up clear visual pictures, but what they certainly do is to call up personal associations, throwing out strong tentacles into long-forgotten experiences. The word "eaves" means for anyone who lives in England and who has wandered about the countryside something

more than a roof-end of a certain shape. A Chinese who looked up the word "eaves" in a dictionary would no doubt get to know its literal meaning, but its effect could not be the same for him as for an Englishman—as "pagoda" must always mean something to a Chinese that it cannot mean for us.

Now we may ask, What has this strongly emotional and personal appeal of description to do with its place in a novel? Our example from Hardy helps to give the answer. We are made to see the cottage and feel about it as anyone might who was actually there. We find ourselves among the characters in the story, those who heard the horses munching and whose fancies played about possible "bright attractions" inside the shed.

For notice where this description comes in the novel. It comes at the point where the Mellstock choir are on their way to the cottage of Reuben Dewy. They approach the cottage, and as they do so Hardy enables us to see what they see. We go forward with them, and the picture grows for us as it grows for them. We are silent and invisible participants in what is happening there.

One further point. For the characters in the story the cottage is something more than the place where things are happening. It is the home of Reuben Dewy the carrier. Hardy's description is one way of making alive to us the significance of the central theme of his novel: the story of the conflict in the mind of Fancy Day, the schoolmistress, who although the daughter of a gamekeeper, has been given an education and ambitions above the level of those

about her. Trouble begins for her when she falls in love with Dick Dewy, the carrier's son ; she cannot reconcile herself to the homeliness of his trade and upbringing. Her conflict becomes real to us only when we experience imaginatively the background of both their lives. When Hardy brings us to Tranter Dewy's cottage he is giving us a direct understanding of the young man's upbringing, so that when we come later to Fancy Day's troubled questionings we know by sympathy—and not merely by hearsay—what her difficulties are. We are not bound down to the limited rôle of spectators who only stand by and watch; we are enabled to live through her conflict with her.

The place, then, of description in a novel is clear. It is itself a part of the story, as much a part of what happens as the deeds and thoughts of the characters. But description can only play this important part when it makes a fully personal appeal, when it engages our emotions, so that through it we are carried into the little world of the novel and its events become our adventures.

VI

In the school, the teacher who sets out to introduce his children to the enjoyment of descriptive writing must be guided by his own understanding of its nature and function. Where description is a part of narrative, the task is twofold. The children must first be led to imagine, to re-create the picture for themselves ; then—and only then—to consider the use of the picture as a background for a story. How

this is to be done it is not part of our intention to discuss in detail; here we are attempting only to suggest principles.

It is evident that unless the child's imagination has been aroused, nothing else is of value. In a later chapter we shall indicate how pictures may be used in general as an aid to apprehending description in words[1]; but no device will be of real use to the individual child unless his own personal living imagination has been set to work. It is suggestion again, therefore, that will probably be the teacher's best means: and he must adapt his treatment to the child, for the power of imagination varies from one to another. The experienced teacher will know that perhaps the greatest danger here is aiming too high; with very many children we must be content to work from what lies within their actual experience, or at the utmost their potential experience. This means that the teacher must know his children as individuals.

One word of caution may perhaps be allowed; the paraphrase of a description, "putting it into one's own words," may often be no more than mechanical verbalism, a sort of trick with words, without any corresponding movement of imagination.

It is only when the teacher is sure that the children are reading with imagination that he can allow himself to draw attention to detail of language and introduce the child into the writer's workshop. The children may now begin to think about the writer's intention, and to weigh his words in relation to this; what has been a half-conscious awareness of

[1] See page 213.

the writer's ends and means may now be made more fully conscious.

As a part of his thought about the writer, the reader will naturally be led to consider the place of description in its narrative. This analysis, we need hardly say, has no value in and for itself; its purpose must always be to serve a sharper awareness. By understanding the relation between background and story the child may be led to a deeper and fuller apprehension of both.

VII

Finally, we may turn to description which is written "for its own sake," description which has no other intention than to recall for the reader what the writer has seen—or imagined. Writing of this kind brings us to the extreme limit of prose, and comes very near to poetry. Here is an example from Richard Jefferies:

> These are the days of the convolvulus, of ripening berry and dropping nut. In the gateways, ears of wheat hang from the hawthorn boughs, which seize them from the passing load. The broad aftermath is without flowers; the flowers are gone to the uplands and the untilled wastes. Curving opposite the south, the hollow side of the brook has received the sunlight like a silvered speculum every day that the sun has shone. Since the first violet of the meadows, till now that the berries are ripening, through all the long drama of the summer, the rays have visited the stream. The long, loving touch of the sun has left some of its own

mystic attraction in the brook. Resting here, and gazing down into it, thoughts and dreams come flowing as the water flows. Thoughts without words, mobile like the stream, nothing compact that can be grasped and stayed ; dreams that slip silently as water slips through the fingers. The grass is not grass alone ; the leaves of the ash above are not leaves only. From tree, and earth, and soft air moving, there comes an invisible touch which arranges the senses to its waves as the ripples of the lake set the sand in parallel lines. The grass sways and fans the reposing mind : the leaves sway and stroke it, till it can feel beyond itself and with them, using each grass blade, each leaf, to abstract life from earth and ether.

RICHARD JEFFERIES : *The Sun and the Brook.*

What is the intention of the writer here ? In one sense it is extremely impersonal. Jefferies seems wholly absorbed in his subject, remote from the world of men, concerned only with the flowers and the sun and the stream. But in another sense the description is profoundly personal : it is permeated by Jefferies' own thoughts and feelings. His description is at the same time objective and subjective, impersonal and personal.

This paradox, which extends throughout poetry—descriptive, reflective and lyrical—has been the cause of much discussion of recent years. Mr. T. S. Eliot, for instance, urges that the nineteenth century view of poetry as essentially personal is entirely false. He pours scorn on Wordsworth's remark that poetry

springs from "emotion recollected in tranquillity." Poetry, he says, always aims at being impersonal or objective. "Poetry is not a turning loose of emotion, but an escape from emotion; it is not the expression of personality, but an escape from personality."[1]

But there is still a great deal to be said for Wordsworth's view. The descriptive and lyrical poet is inevitably personal, because he expresses emotion, and all emotion must, of course, be personal, must be somebody's emotion. At the same time, it is true that emotion never arises of itself; for the person who feels it, an emotion always seems to be embodied in some object of the external world. The poet, therefore, is to this extent always impersonal, that he must always fasten his attention upon the world around him; by speaking to us of this world and re-creating it imaginatively for us, he embodies his emotions, gives them a local habitation and a name, and so is able to arouse in his readers something of the feeling that his words express.

This is what Jefferies does here. He describes the flowers, the sun and the stream, and in doing so expresses feelings and arouses feelings in us. But, as in Hardy, there is strict economy of detail. Much that might be said is omitted; there is no attempt to build up a full picture point by point. If we gain a full impression of the scene, it is because Jefferies' words have a suggestive as well as a descriptive power. Notice in the first two sentences, for example, how the atmosphere of a day late in summer is conveyed.

[1] *The Sacred Wood*, p. 58.

This can only be successful if the reader has himself seen very much of what Jefferies now describes. The convolvulus and the ears of wheat hanging from the hawthorn boughs must mean more to a countryman than a townsman. So far, Jefferies is making an appeal to personal experience.

But the appeal is made through an impersonal medium. He speaks of the external world, builds up pictures and uses figurative language. The hawthorn boughs *seize* the ears of wheat; the flowers are *gone* to the uplands; through the long *drama* of the summer, the rays have *visited* the stream; the loving *touch* of the sun has left its attraction in the brook. Jefferies' own feelings are, so to speak, projected into what he sees. His musing mind has been responsive to the world around him in anything but a rational manner; he has seen the hawthorn boughs almost as animated with desire to grasp the ears of wheat as they pass by; he has seen the procession of flowers move to the uplands. And it is only by giving us pictures of this kind that Jefferies can express feeling, or arouse feeling in us. Emotion is not called up by the power of reasoning or argument, it is aroused by experiences, or the memory or imagination of them. The writer can therefore only be successful if he has some experiences in common with the reader.

The writer can, however, do something to induce a receptive mood in his readers. Here, above all, is the function of rhythm—the pattern of sound and of stress, and the balance of ideas. Its effect is always there, even if the reader does not attend to it.

> The grass is not grass alone; the leaves of the ash above are not leaves only. From tree, and earth, and soft air moving, there comes an invisible touch which arranges the senses to its waves as the ripples of the lake set the sand in parallel lines. The grass sways and fans the reposing mind: the leaves sway and stroke it, till it can feel beyond itself and with them, using each grass blade, each leaf, to abstract life from earth and ether.

There are perhaps three ways in which rhythm of this kind induces in the reader a more receptive mood. First, the rhythm is in harmony with thought and feeling; it is mobile like the stream, the words flow smoothly as the stream flowed, as the grass swayed, as the leaves moved. It is not only his actual words, but his arrangement of them, which expresses the mood of the writer.

A second effect of the rhythm is that it lulls the mind of the reader, almost hypnotising him and so perhaps making him more responsive, more readily subject to the writer's power. Closely related to this is a third effect of rhythm: the pleasure which it gives us in itself, the pleasure of form and pattern. This, equally with the expression of his thought and feeling, is, of course, fully a part of the writer's intention.

In prose such as this of Jefferies, we come very near to the borderland of poetry. And prose of this kind, if it is to be treated in school at all, must be treated as a work of art, subject to the laws of æsthetic activity.

What can the teacher do? His place here, as in the

study of verse, is that of a guide. His work, here as always, is to help his pupils to read in harmony with the writer's intention. This cannot be done by means of reasoning, as a process of logical proof. Grammatical analysis and dictionary-work are of little avail. Imagination is to be stimulated, feelings aroused; words and the rhythm of phrases must be given their due effect without undue attention being paid to them. The teacher, therefore, by suggestion rather than by reasoning, by reading with sympathy rather than by argument, must induce in his pupils the right frame of mind to grasp imaginatively the writer's images and so to experience something of the feeling which they embody.

In this way the teacher may do something to awaken and cultivate the latent desire for the enjoyment of poetry that exists in all of us. The value of poetry is that it brings with it a fuller and completer life. So also does science, in its own way. Each of these activities is a more powerful and more vital expression of one of the main impulses of our nature. Every man strives to live and to be more fully alive. Poetry, stirring the life of sensation and emotion, spurs him to a more living apprehension of beauty; while science, stirring the life of reason, spurs him to a more living apprehension of truth.

Chapter 7

THE SCIENTIFIC INTENTION

I

A GREAT deal of our time in school is occupied in helping the child to develop for himself systems of knowledge. Gradually, out of the chaos of fragmentary and half-related ideas, we help him to build ordered structures of thought—history, geography, science. In this work, at every point of the growth of knowledge, language plays an essential part.

Language provides the necessary technical terms for the things and the classes of things with which we deal; it provides names for the relations between these things; it enables us to formulate those generalisations which we call hypotheses, principles and laws. Terms such as hydrogen, liquid, carnivore, equator, climate; names of relationships such as gravitation, isotherm and Feudal System; generalisations such as Boyle's Law and Archimedes' Law—all these necessary parts of the structure of knowledge are held together by language. Science without language is unthinkable.

The truly basic things of life are, no doubt, possible without language: animals live and die, mate and beget young without uttering a word. But man is the animal with the large brain; in the effort to satisfy his inordinate thirst for knowledge he has developed the unique behaviour that we call rational or scientific language.

It is a habit of mind and of behaviour that few children acquire readily and some never. But with-

out it the whole world of science, from geography to physics, is closed to them. Let us look at some instances of scientific writing to remind ourselves of the difficulties that children may encounter at their own level.

II

Starting once more from the centre of our scheme, this time in the direction of science, we consider first a typical piece of geographical writing.

> London is placed where the road from the Continent through Kent, confined between the Thames marshes and the Weald forest, emerges on the banks of the river at the head of the estuary. London Bridge is the pith and cause of London. Below, either on the north side or the south, and often on both, are flats of alluvium, with a breadth of at least three miles. In the earlier centuries high tide converted these into an arm of the sea, replaced at low water by a reedy fen, through which the river wound with uncertain course. The tributary flow of the Lea was through a similar though narrower marsh bottom, and the Isle of Dogs was the Lea delta, compelling the Thames to cut a bluff into the Greenwich rise on the southern shore. Thus London stood on an angle of solid ground, with tidal marsh to east and south of it, across which roads were afterwards brought on the Hackney and Newington causeways.
>
> Once north of the Bridge the traffic was free to spread along the great fan of roads north-east-

> ward into East Anglia, northward to Scotland, north-westward to Chester and Ireland, westward to Bristol, and south-westward to Southampton. Moreover, by the impediment which it presented to water traffic London Bridge came to mark the limit between sea and river navigation. Thus London arose on a commercial foundation. It was a bridge place, a place of transhipment from water to land and from river to sea, and a centre for the distribution of passengers and goods down the several roads.
>
> H. J. MACKINDER : *Britain and the British Seas.*

The passage falls into three parts : first the position of London is described ; then this is explained ; finally its economic importance is outlined—its relation to the lives and needs of men.

The geographer describes and explains. So does the historian. It will help us to understand the intention of the geographer, the direction of his thought and his use of language if we begin by comparing him with the historian.

The difference between them might be put in this way : the historian recounts and explains, the geographer describes and explains. The historian relates the succession of events, their progress through time ; the geographer sets out events as they are linked one with another in space. The historian is concerned with man in relation to time, the geographer with man in relation to space.

By the very nature of these differences in intention, history approaches art and geography science. Be-

cause the historian deals with the past, which cannot be recalled but only viewed through the present, he must be imaginative, he can only deal with his themes "as though" he were there; and because he is above all concerned with human beings, emotion will strongly colour his re-creation of past events. By virtue of these essential characteristics history is inevitably æsthetic in tendency.

But the geographer deals with what can be seen around him, here and now; he records it while it is in front of his eyes. He has less need of imaginative re-creation in fashioning his picture of things. Further, since he concerns himself with the non-human aspects of the physical universe at least as much as with his fellow-men, emotion is less likely to enter into his picture. He attempts, as far as the nature of his material will allow, to establish an impersonal system of relations. By virtue of these essential characteristics geography is inevitably scientific in tendency.

At the same time, the geographer must constantly make use of imagination in that he does attempt to give us a picture of things, and is concerned to bring home to us the impact of the physical world upon the lives and the deeds of men. The geographer, therefore, must always be something of an artist.

We have chosen a typical passage in which the writer both describes and explains. Let us notice the special intention of the geographer in each of these aspects of his work, and what use he makes of language in the service of these intentions.

To begin with the description, there are two things we notice about it: the writer places London in its

setting in space, and secondly links up this position with a geographical system. There is London, a place with a position and a history. This is what the geographer—like the historian—starts from; and his first purpose is to *place* London for us, to show its relation to other places.

Where the historian looks backward and forward from an event, the geographer looks around from a place. He fits this place into a system; he uses points of reference, the quarters of the compass, lines of longitude and latitude. Without this he cannot begin. So much is this the case that he finds it necessary to resort to maps, two of which accompany this passage in the original. The writer means his statement to be taken in conjunction with a map; his words are to be brought into the context of a logical system of thought, a spatial network through which he views the world. For the geographer this earth is a globe, criss-crossed with lines systematically arranged; the words that he uses refer to these lines, this network.

The geographer's characteristic use of maps is in fact very significant of his thought and his intention and so of his language. This is brought out more clearly if we compare his use of maps with the practice of the historian on the one hand and of the man of science on the other. The historian can, on the whole, dispense with diagrams: his time-charts and genealogical tables are at best supplementary to his story. He can, however, make good use of pictures—his thought, as we have seen, is pictorial. The scientist, on the other hand, while able to dispense with

pictures, finds diagrams essential. The chemist, the physicist, and still more the mathematician, all need diagrams; words, symbols and diagrams together form their means of expression and communication; the diagrams and symbols represent systems of thought into which their words fit.

It is characteristic of the geographer, standing as he does between history and science, that his graphical representations range from pictures to diagrams: his maps, for instance, may be partly pictorial, partly diagrammatic. His language, too, has the same width of range; it is also partly pictorial and partly diagrammatic. *Marsh*, *forest* and *estuary* are pictorial words, demanding imagination of the reader; *north* and *south* are, for the geographer, words denoting spatial relations.

To emphasise this point we may notice that for the writer with purely æsthetic intention—the poet, for instance—even words like *north* and *south* have a pictorial value. When a geographer says *west wind* he means wind blowing from a certain quarter; when Shelley says,

> O wild west wind, thou breath of Autumn's being,

the *west wind* has an emotional much more than a directional and logical meaning.

We come now to the geographer's second intention: to explain.

> Below, either on the north side or the south, and often on both, are flats of alluvium, with a

> breadth of at least three miles. In the earlier centuries high tide converted these into an arm of the sea, replaced at low water by a reedy fen, through which the river wound with uncertain course. The tributary flow of the Lea was through a similar though narrower marsh bottom, and the Isle of Dogs was the Lea delta, compelling the Thames to cut a bluff into the Greenwich rise on the southern shore.

This explanation is in a sense historical ; it links up London of to-day with the past. But the reference to the past is, we must notice, solely for the sake of explaining the present—not, as in the case of the historian, for its own sake. Further, it is only partly historical : the main emphasis of the explanation is on general geographical principles—generalisations of a scientific kind. When the writer tells us that the Lea delta compelled the Thames to cut a bluff into the Greenwich rise, he is in effect relating this particular instance to general laws, analogous to those of biology, chemistry or physics.

But when we say that the geographer's generalisations are of a scientific kind, we must notice also that they are neither so exact nor so general as those of the true sciences. This arises from the very nature of geography, which is always as much concerned with the particular case as with the generalisation of which it is an instance. There is a certain immediacy about the writer's concern with London, a certain attention to its features as a particular place, which would necessarily be absent from the thought, say, of a

physicist. While the geographer's treatment is certainly more general than that of the historian, it is also more particular than that of the scientist.

All this, again, is reflected in his use of words. He uses technical terms: *alluvium*, *delta*, *bluff*; if we look at these it occurs to us at once that they are much nearer to everyday language than the terms, shall we say, of the physicist. It is true that the geographer also sometimes uses more specialised words, such as *meridian* and *isotherm*: this range of language, from the everyday to the highly technical, reminds us once more of the place of the geographer in the field of thought. In his descriptions it is possible for him to make comparatively little use of technical terms; he can dispense with specially devised terms of the kind that the exact scientist must inevitably use, and when he uses everyday language he is able to use it very much in an everyday fashion. Technical terms and a technical use of everyday words only become necessary to the geographer when he begins to explain and to attempt generalisations.

This range, from the language of description to that of explanation, characteristic of the geographer, helps to bring out more clearly the fact that he is only partly a man of science. The physicist, for example, when he describes no less than when he explains, is bound to use technical terms or he runs the risk of not being scientific. But geography is so far from being completely a science that its descriptions may be pictorial and relatively independent of its explanations.

The third intention of the geographer, illustrated in the passage before us, is his attempt to relate the behaviour of man to his physical background—to show the interaction between man and his environment.

> Once north of the Bridge the traffic was free to spread along the great fan of roads north-eastward into East Anglia, northward to Scotland, north-westward to Chester and Ireland, westward to Bristol, and south-westward to Southampton. Moreover, by the impediment which it presented to water traffic London Bridge came to mark the limit between sea and river navigation. Thus London arose on a commercial foundation. It was a bridge place, a place of transhipment from water to land and from river to sea, and a centre for the distribution of passengers and goods down the several roads.

Man's environment may determine that he shall settle here rather than there ; but once this has begun, the settlement grows into London, which in turn dominates its environment, not only the land immediately about it, but other lands far removed from it in space.

The geographer's language is designed to embody these relations between man and space : *traffic*, *navigation*, *transhipment*, *distribution*—these are words denoting different ways in which man deals with the resources of earth, sea and air.

What is the function of the reader, and therefore of the teacher ? First of all we must be aware of the

intention of the geographer—to describe the regions of the world in relation to man's needs. The child must be helped to imagine, in the geographer's manner, and through his language; language which while often pictorial, must be taken with something of the exactitude of science. While, therefore, the child learns to imagine under the guidance of the geographer, he must also learn to reason under his guidance. This, in a phrase, is the whole task of teaching geography in school, and can only be achieved through the course of years; but something can be done, perhaps a great deal, through reading with understanding.

Reading can never be a matter of poring over each word, thinking of its "meaning"; it is a question of taking words in their context, that is, not only their verbal context, but also the context of ideas, the intention of the writer.

The work of the teacher, therefore, in helping his pupils to read geographical writing has several sides. They must become aware of the nature of geography, of the intention of the writer when he writes, of the problem of communication with which he is faced, and of the use he makes of language, maps and diagrams in dealing with this problem. Yet an awareness of all these factors, while necessary to true understanding, must still be kept within bounds, must be subordinated to the reader's real business while he reads: to grasp what the writer has to say.

III

We have seen how the geographer, in description and generalisation, strives to keep a balance between the particular and the general. In doing this, he is at the same time striving to keep a balance between emotion and reason, and even between the personal and the impersonal. For the geographer is not wholly a man of science; if he were, he would be wholly committed to the task of dealing with the world in an impersonal, rational and general fashion.

To enable him to carry out his task, the man of science needs an impersonal and emotionless language —language which lends itself to the task of rational generalisation. Whether every man of science is conscious of this need may well be doubted; many may unquestioningly accept and use the structure of language built up for them by their predecessors.

This, however, is perfectly certain; that as modern science began to take shape in the seventeenth century, so its pioneers came to realise the necessity of a special language. Up to that time, scholars had cultivated the poetical and rhetorical qualities of language—those qualities which best fitted it to be the medium of imaginative literature. But from the time when Bacon put forward his plans for the regeneration of learning, there was a growing feeling that a new language was needed, fit for the purposes of the new science. When the Royal Society was founded in 1660, its founders kept before them "a constant resolution . . to reject all amplifications, digressions and swellings of style. They have

exacted from their members a close, naked, natural way of speaking, bringing all things as near the mathematical plainness as they can."

Since that time this has been the main problem of language for the man of science. We can see the nature of the problem from a single example in the history of chemistry. In 1776, Cavendish, the great chemist, published his observations on the gas which he called "inflammable air." These are two words from everyday language, combined with the intention of forming a scientific term. But it is not quite satisfactory for science. Each of the two words has an everyday meaning, and therefore potential personal and emotional associations which tend to distract us and even mislead us when we are attempting to think about the gas in a purely scientific way. Further, the form of the phrase does not lend itself to the chemist's need to fit every substance into a general scheme—the system of chemistry. He needs a technical term, a need supplied by Lavoisier in 1791 when he named the gas "hydrogen."

But however closely the man of science may confine himself to technical terms, the problem in some measure remains, so long as he uses language at all. All language has affinities and associations with common everyday language and therefore is subject to its personal, individual and emotional meanings.

Nowhere is the problem more acute than in the biological sciences, standing as they do in transition between a descriptive science such as geography and the more exact sciences such as chemistry and physics. For the biologist there are two main obstacles to the

development and use of a scientific language. First, the very nature of the biological sciences, in that they are concerned with life, tends to arouse personal and individual emotions. Inevitably our attitude towards the living must be more deeply coloured by emotion than when we are dealing with the inanimate. Connected with this and perhaps arising from it is the second difficulty: the biologist, although he makes considerable use of the common language, yet requires us to accept everyday words in a technical fashion. At the same time, he is dealing with the living, and therefore may not altogether be willing to divorce his generalisations from his own personal philosophy, and so make them wholly scientific.

Let us, for instance, compare the beginning and the end of this account of the dodder, taken from the austere pages of the *Encyclopædia Britannica*:

> Dodder: the popular name of the annual, leafless, twining parasitic plants forming the genus *Cuscuta*, formerly regarded as representing a distinct natural order Cuscutaceæ, but now generally ranked as a tribe of the natural order Convolvulaceæ. The genus contains nearly a hundred species and is widely distributed in the temperate and warmer parts of the earth. The slender, thread-like stem is white, yellow, or red in colour, bears no leaves, and attaches itself by suckers to the stem or leaves of some other plant round which it twines and from which it derives its nourishment. . On coming into contact with the living stem of some other plant the seedling dodder throws out a sucker,

> by which it attaches itself and begins to absorb the sap of its foster-parent ; it then soon ceases to have any connection with the ground. As it grows, it throws out fresh suckers, establishing itself firmly on the host-plant.

The early part of this is as technical as anyone could wish. There is little temptation for the reader to wander from the strict path of botany. Perhaps a very unscientific person might find himself indulging in some play of thought about the words " leafless, twining, parasitic." Most of us, however, would probably find no difficulty in overcoming this temptation and accepting the words in the purely scientific sense in which they are intended.

But when we reach the later part of the description the case is very different. It begins to be difficult even for the ordinary reader to exclude associations, attitudes and feelings which have nothing to do with botany. The phrase " throws out a sucker, by which it attaches itself and begins to absorb the sap of its foster-parent " may call up involuntary bodily sensations, and with them emotions that we can hardly prevent. The effect of all this is that the words may mean for the reader something different from what the writer intends. Language is an instrument of wide range, and it is not surprising that we should sometimes hear the echoes of remoter harmonies.

But our difficulties are not yet at an end. It sometimes happens, as we have said, that the man of science is himself not altogether willing to divorce his scientific thought from everyday common sense with its

emotional background. Consider this account of the dodder by two well-known biologists

> The seeds of the clover's dodder fall to the ground in autumn, or they may be sown along with those of the harvested crop. In either case they do not germinate till there are young clover plants rising from the ground. Out of the seed there emerges a slender yellow thread, an inch or two in length, with a vestigial root at one end and a mobile shoot at the other. The root end may absorb water, but it does not enter the ground; the other end grows at its own expense, shrivelling behind, and it nutates like a twining plant. It levers itself on the ground as if it were a little threadworm seeking for a host. It sometimes survives about a month of starvation. If it touches a clover stem, it twines round it, making several close coils, from the inner surface of which there grow small suckers of haustoria, penetrating into the bast-tissue of the host. In this way the young dodder gets its materials for further growth, and it begins to branch. Loose coils are formed round the stems and leaf-stalks of the clover, quite different from the close coils, which are like those of a tendril. There is usually an alternation of close coils and loose coils.
>
> J. A. THOMSON and P. GEDDES,
> *Life : Outlines of General Biology.*

This is, taken as botany, simply a description of the life of the dodder, telling us in ordered sequence what

happens to it from day to day. Anyone might watch the dodder and write down in their order just such a sequence of events. But it is safe to say that not everyone would describe them precisely in these terms. The description is strongly tinged with the writers' own ideas.

These ideas do not hang on a single word or a single sentence. They form a current of thought and feeling which permeates the whole passage. The life of the dodder is invested with a purpose. There is no doubt that the writers intend to do this: it is already suggested in the second sentence and then driven home with all the force of analogy in the statement: "It levers itself on the ground as if it were a little threadworm seeking for a host."

As always, in order to understand this intention, we must take it in the wider context of the book as a whole. In this case we find that the authors' general intention—their stated aim, in fact—is to show us that all manifestations of life, from the highest to the lowest, are linked together in this, that all of them reveal the presence of a purpose.

Now a belief of this kind is not a scientific generalisation: it cannot be demonstrated by strict reasoning from observed facts. No doubt it is in keeping with much that may be observed; it may indeed be true, but in the present state of scientific knowledge it can hardly be proved. It is, in fact, as much a matter of personal faith as the personal attitudes and beliefs of a historian such as Buckle.

And because a belief of this kind tends to colour a writer's choice and use of words, it is evident that the

reader needs to be on his guard here no less than in reading history. Impersonal observation and generalisation have been modified by the entrance of emotions and intentions which do not simply arise by reasoning from the facts. In the case of the historian, as we have seen, the effect of these personal attitudes may appear both in the choice of the facts and in the manner of their presentation. In the case of the man of science the former of these is less likely. The rules of scientific procedure will determine, in considerable detail, how his observations are to be made, and so will determine the selection of his facts. But the second possibility always remains. The choice of language may reflect too strongly the writer's personal philosophy.

For the reader of science it is of the greatest importance to keep a firm hold on his own personal prejudices and the emotional tendencies of his thoughts. Science demands, in those who follow as well as in those who lead, that intuition shall be submitted to the rule of reason, that personal feelings and associations shall give way to an impersonal logic. If this austerity is difficult for the adult, it is doubly difficult for the child. For him, reasoning is still in the womb of unreason.

The task of the teacher, when he deals with the literature of science, is to guide his pupils' reading and their thinking so that they begin to understand what is the intention of the man of science, and observe how his use of language fulfils this intention. They must learn to bring his reasoning to the test of their own reasoning, to weigh his logic in the scales of their own critical analysis. In a word, they must

learn to judge the thought of others by developing the habit of thinking for themselves.

In the rest of this chapter I shall attempt to describe some of the features of scientific thought so long as it is embodied in language and dispenses with the special symbolism of logic or of mathematics; and in the final chapter I shall indicate some of the difficulties that the child may encounter in grappling with the higher uses of the mother tongue, æsthetic as well as scientific. In the meantime it is evident that as we pass from geography to biology the balance between emotion and reason needs to be more carefully kept, since even the biologist himself is in danger of allowing imagination to be guided by emotion rather than by reason.

One corrective of the undue influence of personal feeling in science is accurate observation; another the habit of valid reasoning. To appreciate the problems these may present to the child let us now look at some passages from which we may infer the functions both of observation and reasoning in scientific thought and of their relation to the use of language; and notice some of the consequent difficulties which may arise even for ourselves.

IV

In our examples from geography and botany we have seen that the man of science has two main methods—he describes and he generalises. We must now look a little more closely at this second process, for as we move in the direction of exact science,

abstraction and generalisation become increasingly dominant.

How does the man of science engage in abstraction and generalisation and how are these related to the observation of facts? Two forms of reasoning are usually distinguished: inductive and deductive. In the former we work from the facts to generalisations; in the latter we begin with generalisations and reason from them according to the rules of logic.

It is a common belief of the practical man that the only kind of reasoning worth while is inductive reasoning. "It is a capital mistake to theorise in advance of the facts," said Sherlock Holmes on more than one occasion. But theorising of this kind is precisely what the detective himself often did, and it is certainly what every scientist must do in the course of his work. It is true that his reasoning is often inductive, but it is also often necessarily deductive. At times he works from the facts he has observed towards general principles. At other times he begins with accepted principles and from them deduces further principles, or even the likelihood of further facts.

So much, however, is to be said for Sherlock Holmes: modern science is certainly more inductive than the learning that preceded it in the Middle Ages. Today it is only when we pass from the biological sciences towards physics and mathematics, the "exact sciences," that reasoning tends to become more deductive in form.

Still keeping within the range of biology, let us then look at an example of inductive reasoning. We

cannot do better than go to the master of observation and induction in biology, Charles Darwin. With unparalleled care and patience he spent, we know, the greater part of his life in accumulating the observations which formed the basis of his theories.

Darwin himself was fully aware of his own methods. In the Introduction to his *Origin of Species*, he takes us into his workshop :

> When on board H.M.S. *Beagle*, as a naturalist, I was much struck with certain facts in the distribution of the organic beings inhabiting South America, and in the geological relations of the present to the past inhabitants of that continent. These facts, as will be seen in the latter chapters of this volume, seemed to throw some light on the origin of species—that mystery of mysteries, as it has been called by one of our greatest philosophers. On my return home, it occurred to me, in 1837, that something might perhaps be made out on this question by patiently accumulating and reflecting on all sorts of facts which could possibly have any bearing on it. After five years' work I allowed myself to speculate on the subject, and drew up some short notes ; these I enlarged in 1844 into a sketch of the conclusions, which then seemed to me probable : from that period to the present day I have steadily pursued the same object.

His method is inductive : he reasons from the facts. But we must notice that before he began to collect his facts Darwin already had more than a glimmer of

his hypothesis of evolution. This is true of nearly every man of science : he starts with something of a hypothesis, his mind is prepared, so that when he comes across certain facts he is, like Darwin, " struck " by them.

What happens next ; how does the man of science use his facts, together with induction and deduction, to arrive at his conclusions ? For an example of the whole process, as expressed in words, let us look at a typical passage from the *Origin of Species*. Darwin, considering the structure of the eye, argues point by point from it towards his theory of evolution by natural selection.

> To suppose that the eye with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, for the correction of spherical and chromatic aberration, could have been formed by natural selection, seems, I freely confess, absurd in the highest degree. When it was first said that the sun stood still and the world turned round, the common sense of mankind declared the doctrine to be false ; but the old saying of *Vox populi, vox Dei*, as every philosopher knows, cannot be trusted in science.
>
> Reason tells me, that if numerous gradations from the simple and imperfect eye to one complex and perfect can be shown to exist, each grade being useful to its possessor, as is certainly the case ; and if further, the eye ever varies and the variations be inherited, as is likewise certainly the case ; and if such variations should be useful to any animal

under changing conditions of life, then the difficulty of believing that a perfect and complex eye could be formed by natural selection, though insuperable by our imagination, should not be considered as subversive of the theory.

* * * * *

When we reflect on these facts, here given much too briefly, with respect to the wide, diversified, and graduated range of structure in the eyes of the lower animals; and when we bear in mind how small the number of all living forms must be in comparison with those which have become extinct, the difficulty ceases to be very great in believing that natural selection may have converted the simple apparatus of an optic nerve, coated with pigment and invested by transparent membrane, into an optical instrument as perfect as is possessed by any member of the Articulate Class.

He who will go thus far, ought not to hesitate to go one step further, if he finds on finishing this volume that large bodies of facts, otherwise inexplicable, can be explained by the theory of modification through natural selection; he ought to admit that a structure even as perfect as an eagle's eye might thus be formed, although in this case he does not know the transitional states.

Origin of Species, Chapter VI.

Darwin begins with an appeal to our experience as rational men, and suggests that although his theory may at first sight appear absurd or even contrary to common sense, this by no means is any indication

that it is false. Even Galileo's theory that the earth moves round the sun seemed absurd when it was first put forward.

After this introduction, Darwin goes on to reason deductively. Reason tells us, he says, that if certain generalisations are true, his theory must inevitably follow from them by the laws of logic. Next he selects some facts—here omitted—and shows inductively that they do lead to the required generalisations. Finally, arguing by analogy, he suggests that the same theory of evolution which seems valid to explain the structure of a comparatively simple eye must also hold good of the most complicated eye, even the eye of an eagle.

Four processes in common use by scientific writers are illustrated here : suggestion, reasoning by analogy, deduction and induction. Let us glance at these in turn.

Suggestion.—In a great deal of his work Darwin, although one of the strictest of scientists, makes full use of suggestion. What is this process ? A definition by William McDougall, a psychologist whose work owes much to the influence of Darwin, is in place here. Suggestion, he tells us, is the process by which a belief is established in the absence of logical grounds for that belief. Here, for instance, in the first paragraph of our passage, Darwin suggests that the very improbability of a theory may in fact be something in its favour. There are, of course, no strictly logical grounds for this suggestion ; how, then, does Darwin succeed in reconciling us to it ?

He begins by disarming us ; he admits that his

hypothesis really does seem to be rather absurd. This is a very good way of introducing a topic in debate. Not only does it make us want to demur, to say politely, "Oh, no, not at all"; but it also suggests that the speaker is a reasonable person, with no extravagant notions, a man who can see himself as others see him. Having thus put us a little off our guard, Darwin then comes in with a powerful thrust. We, the elect few, he suggests, must rise above common sense. It is true that a new scientific idea often runs counter to popular ideas. But in science the voice of the people is not the voice of God; it is reason which is godlike, and as rational creatures we must rise above the crude notions of the irrational multitude.

All this subtle process of suggestion is carried through by a very skilful use of words. A writer as gifted and as practised as Darwin may be acquitted of conscious artifice, but the art is there.

Notice, for instance, how when he has stated his theory in the most technical terms, he suddenly changes to the simple language of everyday life, almost to words of one syllable:

> "When it was first said that the sun stood still and the world turned round, the common sense of mankind declared the doctrine to be false."

This is the language of suggestion—he is talking to us as one man to another, freely and frankly. But in a moment his manner again changes—we are now rational philosophers together, above the common herd:

"but the old saying of *Vox populi, vox Dei* cannot be trusted in science."

All of us, in writing and in speech, use methods of this kind; we adapt our language and our manner to our topic and to our audience, as we try to win them to our way of thinking. But perhaps we hardly expect to find these concessions to weakness in the man of science, whom we imagine, and who may imagine himself, to be purely rational in his use of words. Yet there is no doubt that so long as the man of science uses the common language he tends to avail himself of all its resources.

The task of the teacher in relation to suggestion, in guiding the reading of his pupils, is somewhat more subtle than might appear at first sight. He must arm them against suggestion, true. But this is not to be done by suggesting to them that they must resist suggestion by always rejecting it. The man who always resists suggestion by flying to the contrary belief is in far worse case than the man who always accepts suggestion. For many suggestions, after all, are fully valid beliefs, validly established by observation and reasoning. To take Darwin's example, most of us believe that the earth goes round the sun. We accepted this as a suggestion in childhood; few of us could prove it by reasoning.

The true task of the teacher in this matter is different from building up mere resistance to suggestion. Children are to be helped, rather, first to recognise a suggestion when they meet it, secondly to be ready to regard it as a hypothesis, and thirdly to counter the

effects of invalid suggestion by developing habits of valid reasoning. It is never too soon, as good teachers have shown, to encourage children to think logically and to practise them in it : one medium is the study of reasoned prose.

V

Analogy is used by the man of science to supplement and support his inductive reasoning. In the passage from Darwin we find examples both at the beginning and at the end. At the beginning he greatly strengthens the force of his suggestion by the analogy between his own theory of natural selection and the heliocentric theory of Galileo. And at the end he draws an analogy between the evolution of the comparatively primitive eye of an insect and the highly complicated eye of an eagle.

The man of science tends to use analogy except where he is able to reason solely by deduction. This, however, is fully possible only in mathematics. And mathematics may be described as the final state of science—what happens to science when it cuts itself entirely free from the real physical world of our senses. So long as a science is at all inductive, it may sometimes resort to reasoning by analogy.

Darwin's theory of evolution by natural selection, for example, was not a generalisation that he could prove, once and for all, beyond any question. It was certainly a highly probable theory, supported by masses of facts—perhaps even the likeliest theory, but by no means the only possible one. Having used

reasoning, inductive and deductive, as far as it would take him, Darwin therefore did not hesitate to use analogy in the effort to add to the probability of his hypothesis.

If we ask what is the power behind analogy, why it is so effective, then the answer certainly is that analogy is largely the everyday reasoning of the ordinary man. In daily life we are rarely called upon to reason strictly, either in a deductive or an inductive way. These processes—as will be seen later—can only be strictly used when we are dealing with abstractions. The physicist, for instance, instead of concerning himself with the world as we observe it every day with our senses, takes account of such abstractions as the motion of a body. He confines himself to particular limited aspects of the universe, and to these aspects only. The ordinary man, bent on doing things rather than on thinking about them, makes great use of analogy when he argues, and for the most part uses it very successfully. And the biologist is still to this extent an ordinary man, that the material at his disposal can not wholly be reduced to abstractions—he still has to deal with the vast and confusing welter of the everyday world of the senses.

Analogy, then, is an everyday way of thinking; but there is no doubt of its effectiveness even in science, especially when it is supported, as it is here, by suggestion or by a kind of imperative: Darwin says that "we ought not to hesitate," that "we ought to admit." There can be no doubt that for the ordinary reader it is analogy rather than purely in-

ductive or deductive reasoning that wins the day, and conduces him to accept the arguments of the writer.

In the school, children need not be trained always to resist analogy, any more than they need be trained always to resist suggestion. An analogy may, of course, be true : the point is to test its truth. Children, even boys and girls of eleven, can be helped to see this, and to find the occasional study of an analogy not only profitable but amusing. The teacher who is interested will have no difficulty in collecting suitable examples from books, newspapers and the hoardings ; and once the interest of the children has been aroused, they too will begin to bring along their discoveries.

We do not mean to overstress the value of logic in school ; but occasional practice in reasoning is a justifiable preparation for the exercise of reasoning in reading scientific prose.

VI

What part does deduction play in inductive science and what part does language play in the process of deduction ? These are our next questions.

We shall take as our example the second paragraph of the passage from Darwin, where he brings in reason to support his contention that evolution must be due to natural selection.

> Reason tells me, that if numerous gradations from the simple and imperfect eye to one complex and perfect can be shown to exist, each grade being

> useful to its possessor, as is certainly the case; and if further, the eye ever varies and the variations be inherited, as is likewise certainly the case; and if such variations should be useful to any animal under changing conditions of life, then the difficulty of believing that a perfect and complex eye could be formed by natural selection, though insuperable by our imagination, should not be considered as subversive of the theory.

If we go through *The Origin of Species* we find only a very few lines devoted to deductive reasoning. Yet it is the centre of Darwin's argument; the whole of his book is a structure whose keystone is a single piece of deduction. This he restates several times in various forms; in the paragraph just quoted it is implied rather than stated.

In a sentence his view is this. The evolution of species must take place in the same way as the selection of species made by man in the garden or the breeding-stud. The gardener or stock-breeder selects from among existing variations those that he considers useful; he causes these to be inherited, and so produces graded species. Now in nature we also find that useful variations are inherited, and we find graded species. Therefore we must conclude that in nature there is a process of selection akin to selection by man; we call this natural selection.

In what respects is this reasoning deductive? It is a recognised form of deduction, having three essential steps; first, we formulate a principle universally accepted; secondly, we show that the state of

affairs before us, something observed, is an instance of this general principle; finally, we are able therefore to make a statement about this particular case. To take the oldest example in the books on logic: All men are mortal, Socrates is a man, therefore Socrates is mortal. Here the general principle is that all men are mortal, and the observed fact is that Socrates is a man; the general principle applies to him and we are able to say that he is mortal.

Darwin's reasoning can be restated in this same logical form.

1. General principle: Like effects are due to like causes.

2. Natural species are an " effect " of the same kind as artificial species.

3. Therefore natural species are due to a cause like human selection, i.e. to natural selection.

Or the reasoning could even be stated in terms of symbols.

Let C represent cause, E effect. Then

1. Like E's are due to like C's.

2. C_1 (human selection) produces E_1 (artificial species) and C_2 (the unknown cause) produces E_2 (natural species).

But E_2 is like E_1,

3. Therefore C_2 must be like C_1.

When we analyse Darwin's statement in this way, and the bare bones of his argument show more clearly, it becomes very obvious that everything depends upon whether natural species are, in essential features, really like artificial species. This is, in fact, again an analogy. Fortunately we are not here concerned

with the validity of his reasoning: whether the process of selection takes place as Darwin pictured it or rather as Lamarck pictured it is a controversy which is still very much alive. Our more particular interest here is to notice what part this piece of deductive reasoning plays in Darwin's argument as a whole; and further, what part language plays in the process of deduction.

It is clear that in the absence of deductive reasoning, whatever work a man may produce, he can never establish those general principles which are the hope of every science. He may observe with accuracy and make inductive generalisations of value, but without deductive reasoning he cannot establish any general principle. Darwin's own multitudinous observations will always be valuable, as observations; but whether they demonstrate the fact of evolution through natural selection, or even the fact of evolution —this depends upon the validity of his deductive reasoning.

Now it is important to notice that the need to reason deductively, the keystone of the scientist's work, makes no demand on his technical skill as a man of science. Anyone who can reason deductively can judge the validity of deductive reasoning. Experiment, observation, induction—these certainly depend upon scientific knowledge, training and ability; and unless they are accurate no conclusion can be true. They are the work of the biologist, the observer, the inductive scientist. But when he has made his observations and generalisations, what then? Then the ordinary person, anyone who can think logically,

may be brought in. Here are the facts, he is told; what may we logically conclude from them?

These two features of deduction—that it is essential to the work of the scientist and yet in itself within the capacity of any man who can think logically—are reflected in its twofold use of language. Language enables the man of science to formulate his problem to himself and set down the steps of his reasoning. And it enables him to bring his conclusions to the test of reason, that is, the logical thought of the community of thinkers.

For both of these purposes language is essential. As for the first, it might, in fact, be said that deductive reasoning is nothing but language, that it is only a way of putting things. Most people could consider that this is an over-statement; but so much can hardly be denied: deductive reasoning does nothing but symbolise and make explicit what is already implied in a given state of affairs. Wherever else, therefore, the man of science may dispense with words, wherever else his thoughts and his deeds may be wordless, here at least, in deductive reasoning, he must use some language, some system of symbols.

In the more "exact" sciences—in physics, for example—the language, the system of symbols, is provided by mathematics; this has, for the purpose of deductive logic, one enormous advantage over the mother tongue, that it provides a language free from general associations, from emotional colouring and from æsthetic leanings. But a science such as biology cannot present all its data in mathematical terms. An attempt is therefore being made today, in the form

of "logistic," to furnish a system of symbols which, while not yet mathematics, is sufficiently exact for science in general and for everyday thought. In the meantime, however, most men of science still find it convenient to use the mother tongue, with all its imperfections, in their reasoning.

The second function of language in deduction is, we have said, that it enables the man of science to communicate with others, to appeal to the community of thinkers. Once more language takes up its social function. But this is a function which is extraneous, it might be said, to the main business of the man of science, for it is quite immaterial to him whether he communicates his thoughts to others or not.

A view such as this can only be based upon a fundamental misunderstanding of the nature of science. Science is by its very nature social. It is a concerted effort of men to deal with the universe. Even if the man of science works alone in his laboratory and never gives a thought to any other person, he still is using tools left to him by his forebears, not least among them the tool of language. And when he uses a system of language he must inevitably use a system of thinking. Again, if he fails to formulate his observations, his reasoning and his conclusions in language, he will make no contribution to science, for all that he has done will die with him.

It must be remembered that this communicative character of science is not simply the making of statements. It is true communication, getting as well as giving. The man of science, in entering into

communion with thinkers dead, alive and yet to come, puts his thought to the test of their thought.

Bearing in mind these two functions of language in deductive reasoning, what is the school called upon to do? It becomes part of the training of each person to be aware of the intention and the instruments of science. This means that first he must understand the aim of a writer in using deductive reasoning, and therefore its relation to inductive thought; this may perhaps seem to be a remote aim, but actually it is a necessary part of the everyday teaching of science at any stage, however elementary. Together with this there must go a critical attention to the writer's thought, weighing with reason what he has put to the test of reason. Finally, some attention must be given to language. The pupil should be trained to ask how far the writer's words convey what he intends, how far they aid or hinder the process of his thought.

For one of the most difficult kinds of all writing is to set out a logical statement with accuracy, clarity and ease. Even Darwin is not always successful: the paragraph we have been considering might well have been put more clearly and with less implication. The teacher who helps his pupils to understand and deal critically with writing of this kind—in books, of course, appropriate to their own level—will have gone far to foster their education both in language and in thought.

VII

We come now to the process of inductive reasoning and to the use which the man of science makes of language as an aid to this process.

Induction is rarely a simple matter of gathering observations and then inferring general laws from them. There is no doubt that many men of science work as Darwin did during the voyage of the *Beagle*. Their observations are guided by a notion of a hypothesis, which in the light of these observations is perhaps modified and refashioned, to be used once more as a guide to further observations.

This is what is called a "working hypothesis"; and it is not too much to say that in every inductive science all laws tend to remain working hypotheses. For as knowledge grows and as sciences expand and change, even those principles which have seemed to be immutable laws are often found to need modification. This is particularly true in biology, where observations are yet incomplete and inconclusive in many ways.

Darwin was fully aware of this. He realised, perhaps more strongly than some other men of science, that even a lifetime of patient and accurate observation may be insufficient to prove beyond doubt the truth of a hypothesis, and that therefore we may have to justify our acceptance of it by saying that on the whole it fits the facts better than any other.

> It can hardly be supposed that a false theory would explain in so satisfactory a manner as does the theory of natural selection, the several large classes of facts above specified. It has recently been objected that this is an unsafe method of arguing; but it is a method used in judging of the common events of life, and has often been used by

> the greatest natural philosophers. The undulatory theory of light has thus been arrived at; and the belief in the revolution of the earth on its own axis was until lately supported by hardly any direct evidence.
>
> *Origin of Species*, Chapter XV.

In a word, the man of science uses the common-sense everyday method of starting out with some reasonable theory and then testing it against actually observed facts. The difference between science, however, and everyday common sense is this, that in science a much higher standard of exactness is necessary both in theorising and observing.

How does the man of science select, observe and gather his facts? More than half his time is spent in deciding what to observe, and in classifying what he has observed. In all this, language is an essential instrument, part of the indispensable apparatus of the laboratory.

Take, for instance, Darwin's account of the special evolution of the eye in order to illustrate his general theory of evolution. There are many obstacles, he tells us, in the way of gathering the necessary specimens, and not the least of them is deciding which organs are to be called "eyes."

> The simplest organ which can be called an eye consists of an optic nerve, surrounded by pigment-cells and covered by translucent skin, but without any lens or other refractive body. We may, however, according to M. Jourdain, descend even

a step lower and find aggregates of pigment-cells, apparently serving as organs of vision, without any nerves, and resting merely on sarcodic tissue. Eyes of the above simple nature are not capable of distinct vision, and serve only to distinguish light from darkness. In certain star-fishes, small depressions in the layer of pigment which surrounds the nerve are filled, as described by the author just quoted, with transparent gelatinous matter, projecting with a convex surface, like the cornea of the higher animals. He suggests that this serves not to form an image, but only to concentrate the luminous rays and render their perception more easy. In this concentration of the rays we gain the first and by far the most important step towards the formation of a true picture-forming eye; for we have only to place the naked extremity of the optic nerve, which in some of the lower animals lies deeply buried in the body, and in some near the surface, at the right distance from the concentrating apparatus, and an image will be formed on it.[1]

What it comes to is this. The biologist looks at a particular organ and asks himself, Is this an eye? But in order to decide whether this particular organ is an eye he has also to ask himself the question, What is an eye? Throughout this double process, of deciding which things are to be brought into the class of "eyes" and whether this particular thing may be included in the class, language plays an absolutely indispensable part.

[1] This paragraph occurs in the place marked by asterisks in the passage on page 167.

Look, for example, at the first sentence here. "The simplest organ which can be called an eye consists of an optic nerve, surrounded by pigment-cells and covered by translucent skin, but without any lens or other refractive body."

Here at once the observer selects his data and at the same time limits the meaning of his words. For the ordinary person an eye has many characteristics—shape, for instance, and colour. But Darwin says, in effect, let us ignore most of these characteristics, let us consider only the function of the eye, that it is an organ of vision. Having made this selection, this abstraction of the function alone out of many features, he is able to go on to classify, to bring together many diverse things, because they all have this same function. Under the term "eye" he can now bring in a wide range of objects, including many which the ordinary man, in everyday life, would certainly not consider an eye—"an optic nerve," for instance, "surrounded by pigment-cells and covered by translucent skin, but without any lens or other refractive body," or even "an aggregate of pigment-cells, without any nerves."

In this way the word "eye" becomes a technical term. This name, this technical term, is a tool, a means by which the biologist makes his selective observations and classifications, and a means by which he can bring many other people, his readers, to the same point of view as his own.

For his technical term the man of science sometimes —as on this occasion—uses an ordinary everyday word. But as he gives this everyday word a limited

meaning, he must define it. He asks us to ignore much of the wealth of meaning and association which the word "eye" may have in everyday life, in poetry or in rhetoric. Let us define "eye," he says, as an "organ of vision"; that is to say, let us limit the meaning of this everyday word by bringing it into relation with technical terms, which themselves may in turn be defined.

Sometimes, however, the man of science finds that no everyday word will serve his purpose, and he therefore has to resort to creating a new word to serve as his technical term. An example of this is "sarcodic tissue," which Darwin himself defines as "the gelatinous material of which the bodies of the lowest animals (Protozoa) are composed." This illustrates very clearly how a definition itself consists of technical terms, which in turn are themselves related to other technical terms within the science.

Every technical term is, in fact, the embodiment of a process of abstraction and classification. In every inductive science there is a network of such technical terms, each linked to all the others in a logical manner, by the processes of abstraction and classification.

Running through these two processes, and emerging from it, is the process of generalisation. "Eyes of the above simple nature are not capable of distinct vision and serve only to distinguish light from darkness." This is a generalisation. Having made it, the biologist goes on to use it as a guide to further selection and observation. Ultimately, through this complex process of abstraction, selection, classification and generalisation he is able to test and if necessary

modify his original hypothesis, and so ultimately arrive at a principle of wide scope—a scientific "law," such as Darwin's theory of evolution by natural selection.

Just as at the stages of abstraction and classification, so too in generalisation language plays an important, perhaps even an essential, part. It is, in fact, difficult to see how in the absence of language or other symbols there could be any generalisation at all.

It is clear that the language of the man of science, as used by him in observation, classification and generalisation, is something very different from the language of the poet—it is almost another language. Yet both of them have grown out of ordinary practical everyday language, and both are continually growing out of it. Here lies the difficulty of the ordinary reader, and this is where training in language may play its part. For just as we all have to begin by learning everyday language, so at a later stage we have also to learn the higher, remoter forms, the poetic and the scientific. We have to learn how to read language with an æsthetic intention and language with a scientific intention.

Because, however, it is language that is being used throughout—language, the same instrument of social intercourse—we may fail to adapt ourselves to the differences, and real difficulties of comprehension may then result. The reader must play his part in the social interchange of language by accepting it and responding to it within the same field of intention as that of the writer. And he must be able to adapt himself to an unaccustomed field. Having grown

familiar with either the æsthetic or the scientific use his mind must remain flexible enough to allow him to adopt language of a new kind. In education, therefore, there is a positive need for training in all the three uses of language: the practical, the æsthetic and the scientific.

VIII

We have now finally to ask, What is the place of language in the exact sciences? Here, in such sciences as physics, chemistry and biochemistry, the mother tongue is largely replaced by mathematics, in observation, induction and deduction. But language still plays its part.

It plays its part chiefly at the stage of deduction. Observations may be reduced to measurements, inductive generalisations may all be stated as mathematical formulæ, and deductive reasoning may then be formulated by means of symbols. But this pure deduction is only possible when one is dealing with pure abstractions, as, for instance, in mathematics. Here pure deduction becomes possible because we are dealing with abstractions; not with things, but with measurements of them; sometimes not even with measurements but merely with quantities; sometimes not even with quantities but with classes of quantities. In such a realm we can bind every statement to every other by strictly logical links and irrefutable generalisations can be reached.

But no science, not even physics, is perfect in this sense. One set of observations leads to one generalisation, another set leads to another one apparently

inconsistent with the first. As Darwin says, the physicist, no less than the biologist, has to use working hypotheses. The example mentioned by Darwin—the hypothesis that light consists of waves—is a particularly interesting one. Darwin chose this as an instance of a theory which once was merely a working hypothesis but had now become fully established as a principle. But it so happens that since Darwin's time things have again changed, so that what was then a fully accepted principle has once more become a working hypothesis.

The case has been stated in a striking way by Sir William Bragg. From the time of the Greek philosophers, he tells us, two alternative hypotheses at different times have held the field. In the seventeenth century, for instance, Newton maintained that light was a succession of particles; but this corpuscular theory had by Darwin's time been replaced by the undulatory theory. Today, however, the physicist finds that neither of the two theories can be either wholly accepted or wholly rejected.

> It is by a series of successive steps that we approach the truth: each step reached by the help of that which preceded it.
>
> We are here face to face with a strange problem. We know that there must be a reconcilement of our contradictory experiments; it is surely our conceptions of the truth which are at fault, though each conception seems valid and proved. There must be a truth which is greater than any of our descriptions of it. Here is an actual case where the human

> mind is brought face to face with its own defects. What can we do? What do we do? As physicists we use either hypothesis according to the range of experience that we wish to consider. To repeat a phrase which I employed a few years ago in addressing a university audience familiar with lecture time-tables—on Mondays, Wednesdays and Fridays we adopt one hypothesis; on Tuesdays, Thursdays and Saturdays the other. We know that we cannot be seeing clearly and fully in either case, but are perfectly content to work and wait for complete understanding.
>
> *British Association, Presidential Address*, 1928.

So long as a science is in this fluid state, the man of science is unable to rely solely upon deduction. This instrument he will certainly use, but only in conjunction with his other tools, observation and induction.

To illustrate this, we shall choose as our last example a problem of modern physics which arises from the theory of relativity: the change that is said to occur in the size of a moving rod, according to whether its length lies in the direction of the line of movement or across this line.

> Suppose that you have a rod moving at very high speed. Let it first be pointing transverse to its line of motion. Now turn it through a right angle so that it is along the line of motion. The rod contracts. It is shorter when it is along the line of motion than when it is across the line of motion.

This contraction, known as the FitzGerald contraction, is exceedingly small in all ordinary circumstances. It does not depend at all on the material of the rod but only on the speed. For example, if the speed is 19 miles a second—the speed of the earth round the sun—the contraction of length is 1 part in 200,000,000, or $2\frac{1}{2}$ inches in the diameter of the earth.

You are surprised that the dimensions of a moving rod can be altered merely by pointing it different ways. You expect them to remain unchanged. But which rod are you thinking of? If you are thinking of continuous substance, extending in space because it is the nature of substance to occupy space, then there seems to be no valid cause for a change of dimensions. But the scientific rod is a swarm of electrical particles rushing about and widely separated from one another. The marvel is that such a swarm should tend to preserve any definite extension. The particles, however, keep a certain average spacing so that the whole volume remains practically steady; they exert electrical forces on one another, and the volume which they fill corresponds to a balance between the forces drawing them together and the diverse motions tending to spread them apart.

When the rod is set in motion these electrical forces change. Electricity in motion constitutes an electric current. But electric currents give rise to forces of a different type from those due to electricity at rest, viz. magnetic forces. Moreover, these forces arising from the motion of electric

> charges will naturally be of different intensity in the directions, along and across the line of motion.
>
> A. S. EDDINGTON: *The Nature of the Physical World*

Eddington goes on to tell us that this conclusion has been approached in three different ways: first, inductively, and then by two processes of deduction. The inductive approach is by experiment, that is to say by controlled observation. Michelson and Morley carried out an experiment by which they were actually able to measure the different lengths of a moving rod according to its position in the line of motion, an experiment which was afterwards repeated by others. This selective, abstracted observation—for the observers were concerned only with the size of the rod and with no other feature—is exactly of the same kind as the selective observation of the biologist, except that in an experiment the observer has control over the conditions of his observation.

But it is not enough to arrive at a generalisation by this inductive method: the physicist must be sure that it can also be reached deductively. To this end he makes use of the powerful and exact methods of mathematics. In this case, Eddington tells us, Lorentz and Larmor calculated what the change in the dimensions of a rod was likely to be; their result corresponded precisely to the FitzGerald contraction.

Finally, the physicist must be sure that his generalisation also fits in with the principles of physics, as judged by the strictest deductive logic. The FitzGerald contraction stands up to this criterion also; as

Eddington says, it is " a necessary consequence of the scheme of electro-magnetic laws universally accepted since the time of Maxwell."

All this illustrates very well the balance which is kept in an exact science such as physics between induction and deduction.

What is the relation between these tools of the scientist and that instrument with which we are here more particularly concerned—language? It is clear that if we compare physics with biology language will play a much less important part in the processes of observation and generalisation. The inductive part of physics—experiment—as well as the deductive part are carried on very largely by means of mathematics; a language, it is true, but one which bears little relation to everyday speech.

Where language enters physics is at a later stage; when induction and deduction have done their work and hypotheses have been formulated. Even a hypothesis can be formulated in purely mathematical terms, but sooner or later there comes a moment when the physicist feels the necessity of comparing one hypothesis with another, of attempting to reconcile the Monday hypothesis with the Tuesday one. Further, he may also feel the necessity, as Eddington himself does, of bringing the conclusions of physics into relation with other aspects of thought, with philosophy for instance, or even with religion.

Some workers in physics may deny their need to do either of these things, and therefore assert that they can dispense with language. But the science of physics as a whole cannot dispense with it, for there

has never yet been a time in the history of physics when some of its leaders have not felt the necessity of attempting, through language, to compare one hypothesis with another or the laws of physics with other aspects of reality.

Our passage from Eddington is part of a work in which this twofold attempt is made, and it illustrates very well both the intention in writing of this kind and the language that may be used. There is a marked absence of rhetoric and of appeal to emotion. His style admirably satisfies the demand made by the founders of the Royal Society ; it is a " close, naked, natural way of speaking," characterised by " mathematical plainness."

These features of the language of the man of science are not accidental. On the one hand, the writer must formulate generalisations and compare them with one another ; for this he must be exact and as near mathematics as possible ; he must, so to speak, translate mathematics into the mother tongue. On the other hand, he must appeal to reason in attempting to show the relation between physical laws and thought in general ; for this he must, as far as possible, free his language from emotional overtones. His language is formed by his needs.

This is the point at which physics is brought into the life and thought of the educated man. To aid this is not the least of the functions of the physicist ; it is in this way that science justifies itself in the life of the community. The justification of science is not that it has an immediate " practical " result—or, as some would say, an " economic " end ; science

certainly has immediate practical results, but there are whole realms of science, perhaps the most important realms, whose value in the life of the community is that they shape and extend the thought of the ordinary man.

It is not for every man to be a man of science. But every man is a member of the wider community to which science appeals, the army which the leaders of science need to give science stability and power. Science is an instrument in man's attempt to master circumstances; this can be achieved not by the isolated speculations of a few men of genius, but by the organised labour of all men. And one form of organised labour—perhaps the most important form—is organised thought.

The chief means of this organisation is language—the instrument of communication, which makes a group into a community. There is a duty, therefore, not only laid upon men of science to lead with vision, but upon all men to follow with understanding. Once more we are brought back to the threefold aim of education in fostering the work of language. Each man must learn to command the three uses of language: the practical, by which he may satisfy his everyday needs; the æsthetic, by which he may come to see beauty in the things around him; and the scientific, by which he may come to understand them.

THE TEACHER'S USE OF LANGUAGE

Chapter 8

LANGUAGE IN THE CLASSROOM

I

THE teacher is a talker. However much our principles of education may emphasise the importance of the child's own practical activity, a large part of his time in school must of necessity be spent in listening to the teacher talk.

Yet teachers have always known that too much talk is a source of trouble in education. Words are tricky things; the child, listening, mis-hears; even when he hears, he misunderstands: it is more natural for him to act than to speak. The remedy, therefore, sought by many a reformer in education throughout the centuries has been to limit talking in favour of doing, for when a child does things with his hands his mistakes are at once made plain both to him and to us.

To protect the child entirely from the evils of language is, however, not possible. When we have given as wide a scope as we can to the principle of learning by doing, language must still play a fundamental and indispensable part in the school. The value of ideas, the chief goal of education, is to be reached only through language.

The dilemma cannot be escaped. As long as education seeks to open to the child the way to the higher levels of the thought and imagination of the community of men, so long must it expose him to the errors which arise from language. Every teacher, confronted by children's daily blunders, is impelled to suspect that many more remain unuttered, that the

child's misapprehensions of what he hears and reads may lie deep and extend far. No remedy remains for us as teachers but to take thought and ask what can be done to minimise the errors inherent in the cultivation of language in school.

In the present chapter we shall consider first, what are the teacher's specific aims in this cultivation of language; secondly, which difficulties arise from the very nature of the school and of the relations between teacher and pupil; next, which characteristics of the child may foster, and which hinder, his co-operation with the teacher; and, finally, the precautions that may be taken to overcome the natural difficulties of the tasks of linguistic education.

II

The teacher in the school is *in loco parentis*, in linguistic education as in all else. The teacher takes the place of the child's mother; he transforms the mother tongue into the language of education.

In the child's early years it is his mother and the small community of his home who day by day train him to a greater mastery of language, bringing him within closer reach first of the world of things, then of the world of ideas. These three tasks the teacher takes up with more urgency and with perhaps a keener awareness of their purpose. Through language the teacher brings the child into an ever-broadening world of things, the physical universe, much of which would otherwise pass unheeded before his eyes. Through language also the teacher helps to make the child a citizen of the world of ideas—a task even more specific-

ally that of the school, and even more specifically dependent upon the use of language. And throughout all this it remains a constant aim of the teacher to develop the child's own mastery of language, so that it may become for him a more flexible medium and an instrument of wider range in his dealings with men, with things and with ideas.

In attempting these three tasks the teacher is in some respects better off, in some worse off, than the child's home which he so largely replaces. He is better off in this, that school is for the child a place where things are learnt ; entering the classroom, he becomes on the whole more receptive of what is novel, a little more curious, a little more eager to explore the unknown. The whole process of education, in the home vague and sporadic, is in the school brought to a sharper focus and more clearly directed to its ends. The teacher is also better off in that he is by training and experience prepared for his work and that he has at his disposal the apparatus and special equipment of the school. Finally, he is aided in his task by the fact that he is teaching not a single child, but a class ; the presence of others is an incentive for each child to enter more readily into the game of extending his mastery over the instrument of language.

On the other hand, the teacher is greatly hindered both by his own characteristics as a teacher and by the nature of the task that he is undertaking.

For in himself, and because of the demands of his profession, the teacher tends to be different from other men in his command of language. He is more "literate." From an early age he must have shown

ability in the use of words rather above the ordinary ; by nature and by early training he is more at home than others in the world of words, or—to speak more accurately—in the world of symbols. Symbolisation, the use of words and numbers, is a special kind of ability, or possibly several closely allied abilities. In one or other of these, perhaps in all, the teacher tends to excel. He has, in fact, been selected because of this special bent ; he has passed examinations which, above all, have tested his aptitude for symbolised thought. And while he is being selected in this way he is being given further training which increases his skill in symbolisation until at last he emerges a man whose thought, feeling and action are all imbued with this special form of behaviour.

But this very intimacy with words and numbers tends to make him less able to understand and enter into thought and behaviour not mediated by symbols. The less literate, the less academic person—the man who does things with his hands rather more readily than he speaks or writes—lives in a world of thought fashioned differently from that of the teacher, who is often more occupied with symbols than with the reality which they symbolise ; there opens a gulf between these men not to be bridged without effort.

If this is true of the teacher in his relations with other men, how much truer may it be when he has to deal with children. For in all of us skill in the use of language grows as we grow ; the partial substitution of words for deeds is a habit that we acquire as we grow up in civilised society. If the teacher finds a difficulty in putting himself in the place of an adult

whose behaviour is practical rather than literate, how much more difficult for him to put himself in the place of a child, who has hardly begun to use language at all.

These are difficulties which arise from the characteristics of the teacher himself ; at the same time there are difficulties inherent in the nature of his task in school as compared with the task of the home. The child's mother, on the whole, trains him to use language as a means of dealing with concrete realities, things that he can see and feel even without the mediation of language. But the teacher is attempting to bring the child into a world of imagination and thought, a universe of images and abstractions, which cannot be reached at all except through the medium of some symbolic representation.

Every tool begins by separating us from things so that ultimately we may come to closer grips with them. Instead of grasping a plank and rending it with our hands we interpose a saw. At first our efforts to deal with the plank in this new way are little more effective than if we used our naked hands ; but as time goes on, as we acquire a greater mastery over the saw, with it there comes a greater mastery over the wood. Or we may watch a baby in his cot fumbling with a piece of string which has a toy tied to its end. At first the child's clumsy random movements drag and dance the toy farther out of his reach ; but sooner or later the string becomes a sure means of bringing the toy to hand.

Language is a tool which separates us at first from the world of concrete things and the world of ideas,

only to bring us to closer grips with them in the end, and to ensure us a more perfect mastery over them.

III

Yet this remains a permanent source of difficulty in linguistic education, that language is a tool over which the child must acquire mastery. In the first place, there is the child's immaturity : he is inexperienced and needs practice. This difficulty is obvious enough, but the true problem lies far deeper. The fact is that the child is not merely learning to use a new tool, for when he enters school his skill in language, though far from perfect, is already adequate to supply his immediate needs. Nor is the child at school simply learning to use an old tool better ; he is attempting something much more difficult—to use an old tool in a new way.

The school aims at transforming the language of the child into the language of education. What is well fitted to deal with the concrete, the personal and the affective must be changed and refined so that it becomes capable of dealing with the abstract, the impersonal and the cognitive.

The features of this change are not, of course, independent of each other : they are all expressions of the one central contrast between the language of education and the language of the home. The language of education we have described in the body of this book and have tried to show that it is fashioned to serve the purpose of imagination and abstraction, of impersonal and cognitive intentions. The language of the child, by contrast, may be described as centred

about himself: it is closely bound to action and is in itself a mode of action by which the child attempts to secure the co-operation of others in satisfying his needs. Because it arises out of the child's efforts to grapple with his immediate world, it is necessarily concrete. Because the child is concerned to deal with this immediate world as it is related to his own person, and because his power of dealing with this world comes to him through the acts of other persons, his language is of necessity intensely personal. And because the child is concerned to obtain knowledge of the world not so much for the sake of this knowledge as for the satisfaction of vital needs, his language is bound up with feeling, desire and will; that is, it is strongly affective and conative rather than cognitive.

Thus the entire language of the child has a different direction from the language of the school.

IV

So we get "howlers." Every howler is, of course, an instance of the teacher's failure, yet every teacher ought to be grateful for howlers. For a howler is a clear and overt symptom, giving the teacher a chance to diagnose what is wrong. Further, a howler shows that a child's mind is active—that he is reaching out, making an effort to deal with the unknown. An inert child, a passive child, does not make howlers: he makes nothing. Confronted with the unknown, he ignores it. But the alert child, accustomed to try to understand and making an effort now to understand, faces the unknown with courage and tries to make something of it. If he fails, by respond-

ing in a way that has become customary to him instead of orientating himself anew, it is because we have not given him sufficient guidance.

Howlers arise when children attempt to understand familiar no less than unfamiliar words. As a result, howlers are mainly of three kinds: when the child has to deal with a familiar word which is given a new direction by the adult; when he takes an unfamiliar word in relation to verbal associations and a verbal content; and when he takes an unfamiliar word in relation to a context of ideas.

For an illustration of the first kind I choose an example from Jespersen's book *Language*:

> When Franz (4 years 5 months) played a war-game with Eggert, he could not get it into his head that he was Eggert's enemy; no, it was only Eggert that was the enemy.

To a child, the word *enemy*, used in play or even in earnest, means someone inimical to him, someone whom he dislikes and whom he will fight. The word has a personal meaning which is centred about the child himself and which is strongly invested with feeling. But for the adult the word has taken on a somewhat impersonal meaning which at the same time is cognitive rather than affective in intention. *Enemy* denotes a relationship which subsists between people, it refers to the relationship rather than to the people, so that if Germany is the enemy of Britain, Britain is also the enemy of Germany. In the language of education, the word can be used without personal feeling, so that we can say, in a purely objective

manner, "The Germans used every means at their disposal to overcome the enemy"—a sentence which a child might find somewhat puzzling, and which, in recollection, he might easily distort into a howler.

Misapprehensions of this kind are likely to occur to any child, or indeed to any person who uses language in a concrete rather than an abstract way. The acquisition of the language of education is often a slow process in which concrete and personal meanings only gradually give place to the abstract and the impersonal.

More frequently, however, than such cases in which a familiar word is being given a new direction are those in which a child attempts to deal with a totally unfamiliar word by relating it to whatever is familiar in its context. This, of course, has become a habit with him: it is the method he has used from the time when he first began to learn language—the meaning of a new word springs out of the familiar features of its context. In the early stages of the mother tongue, in the home, the context usually consists of concrete things and of actions; the child, for instance, learns the meaning of the word *milk* by hearing it as a part of a total experience. His mother offers him milk, he sees her coming, sees the milk and tastes it. The word for him is at first significant of the whole experience, of the familiar context; and it is by hearing the word in a succession of contexts that he learns to give the word the specific meaning intended by the community around him.

So long as the context is physical and concrete, the meaning given by the child to a word is likely to be that intended by others. But in the language of

education, the context must often be merely verbal—a context of words ; or abstract—a context of ideas. Here the child, although he uses the method which has served him in such good stead and which therefore has become a habit—the method of relating the unfamiliar to what is familiar in its context—may go far astray.

All this is illustrated in an example of a howler which I borrow from Sir John Adams :[1]

> An English master could not understand the word *smake* that occurred in a Scotch boy's essay. He gathered from the context that it was something to eat, but could not accept the boy's confident explanation that it was a small steak. Careful inquiry brought out the fact that in the boy's family circle this was the accepted meaning, its origin being a corruption of the metrical version of the Hundredth Psalm. This had been taught to the children before they could read, by making them repeat the words after the nurse. Since they could not understand the real sense, they had, from a fundamental necessity of human thought, to supply a sense of their own.
>
> " Know that the Lord is God indeed
> Without our aid he did us make (did a smake) :
> We are his flock, he doth us feed,
> And for his sheep he doth us take (doth a steak)."

The child, hearing and saying again and again two unfamiliar and unintelligible phrases, interprets them through the only two aids he has—the context of ideas

[1] *Exposition and Illustration*, p. 49.

and the context of words. What happened must have been something like this : of the two phrases, *doth us take* was first given a meaning suggested by the close neighbourhood of the word *feed*—a meaning due to the context of ideas. Then an interpretation of *did us make* presented itself to the child, and because *did a smake* verbally balances *doth a steak*, so the meaning of the remaining unfamiliar word was taken to balance the word already understood. Because there was a balance of words the child sought a balance of ideas.

The critical teacher, while accepting these examples as interesting and amusing, might have several things to say against regarding them as important characteristics of children in general.

In the first place, he might urge, mistakes of this kind occur only once in a thousand times. On the whole, he would say, children do not make howlers. They are mostly quick enough to have some idea of the meaning of a new word ; if not, they generally sit still and say nothing. There is some truth in this. But the very rarity of howlers should put us on our guard. The child's silence may mean that for the moment he has ceased to attend, that his mind is not reaching out actively to the unknown. Or it may mean that although his mind has been at work so that he has made an attempt to interpret the new word, he is too self-conscious or too shy to run the risk of making a mistake. Howlers help us by giving a clue to the way in which children's minds naturally work, and their occurrence should remind us of the innumerable other mistakes and half-mistakes that may lie in the borderland between truth and error.

A second point that might be urged by the critical teacher is that the kind of howlers we have described, though liable to occur to the young or the retarded child, are hardly characteristic of the normal child of school age. On this, two or three things may be said. First, as we have tried to suggest, it is not the inert but the active child who makes howlers—the child who, perhaps, may be retarded in development of language but who is nevertheless eager to understand. For this child there is much hope. Further, a fundamental difference between the normal child of school age and the young or retarded child is this, that when the former makes a mistake his personal dignity and self-regard inhibit him from giving it expression. He is "too careful" to make howlers. But ought this to reassure us? On the contrary, we should welcome the howler as a sign of exuberant vitality, as a relatively harmless expression of a misunderstanding which, if repressed by the child, might well give rise to deeper and more lasting error.

Finally, we must remember that both "young" and "retarded" are relative terms. The processes of thought found in their most characteristic forms in the young and the retarded are present in all of us, even in adults, in greater or less degree. We are all of us young in some respects, old in others; immature in some kinds of behaviour, mature in others. Throughout the whole field of education the teacher is constantly confronted with this fact, that infantile forms of behaviour persist throughout school age and adolescence. Behaviour which is apparently irrational often becomes intelligible when we recognise

that it is an anachronism of development, a late survival of infancy.

As teachers our wise course is not to deny the importance of any symptom that may guide us in our difficult task of understanding the minds of our pupils. And howlers are a clear symptom that the gap between the child's own language and the language of education is still wide and that in the absence of a bridge he has made a wild leap across it. Perhaps the chief function of the teacher in linguistic education is to provide this bridge.

V

In effect, there is one basic principle which the teacher must keep in mind throughout: education in language is never the imposition of a totally new kind of behaviour upon a void. The child comes to school already equipped with language which, within its limits, does its work for him well enough. The school takes this language and transforms it, giving it a new direction. But in doing so it does not introduce any really new characters into the child's language; it only takes some of the features already present and gives them a fuller emphasis, altering the balance and proportion of the functions of his language without, however, altering its nature.

In contrast with the language of the school, the child's language is, we have seen, marked by two main characteristics. In itself it is a mode of action and is closely linked with action, and its meaning is centred about the child himself in a personal and affective manner rather than directed outwards upon the world in an impersonal and cognitive way. As teachers we

must begin with these facts and try to effect a transition from the child's language to the language of education.

These characteristics—that the child's language is action for him and is closely linked with action—must make us cautious in bringing him too rapidly and too exclusively to language which moves solely in a world of words or a world of ideas. As we have seen so often in preceding chapters, the language of adult life, of the school and of literature tends to refer not so much to immediate physical action as to other words, or to symbols, or to what is imagined, or to abstract ideas. As a result, all our early work in language with the child must start from physical action and the familiar world of concrete things, and from this take its new direction towards the world of thought. The child should come to realise that speech is a way of doing things, and from this gradually be brought to see that among the things it helps us to do are thinking and feeling. It must become clear to him, not merely as a theory, but by way of continued practice, that just as language has long enabled him to secure the aid of others in satisfying his physical needs, so now it may enable him to secure communication with them in the world of thought and feeling.

At which point in his school career should we begin to change the direction of the child's language? At no stage, of course, is the content of this language wholly physical; even in infancy it is in some measure directed upon the world of imagination and of ideas. The speed of growth is greater in some children than in others; education should be elastic enough to adapt itself to each child's natural pace. With this

are bound up the difficult problems of the grouping of children for the varied forms of post-primary education. The Special Place Examination, which is largely a test of the child's skill in thinking symbolically, in language and number, provides us with a crude classification; within each type of school, however, there still remain enormous individual differences of aptitude for symbolical thinking. The speed of advance, therefore, must once more be left to the skill and discretion of the teacher. But it is as well to bear in mind that in the past the school has erred not in delaying but rather in fostering too soon the process of change in an academic direction.

In the classroom the problem becomes a practical one. Among the many possible aids to its solution three in particular commend themselves pictures, diagrams and free discussion.

Pictures, diagrams and language mark, so to speak, three stages of remoteness and abstraction from the concrete reality of the physical world. A picture is a representation of the real world and may closely conform to it as we actually experience it through the eye. There need be little symbolisation and no dependence upon convention; the understanding of a picture may nearly be as straightforward, as immediate, as the apprehension of the real world. There are, however, within the range of pictures many which demand symbolisation, abstraction and the acceptance of convention. With these we begin to move away from the concrete reality of the physical world. But even those pictures which abstract from the real world still remain less abstract than diagrams.

With diagrams we move farther still, as symbolisation, abstraction and convention are carried farther. A diagram makes no attempt to represent reality as experienced through the senses : a diagram is a symbolisation of relationships, graphically and spatially presented. Within the range of diagrams there are, again, grades of symbolisation : at one end of the range, with maps, we are still not far from pictorial representation ; at the other end of the range, with diagrams of the kind used on page 86, we may reach the symbolisation, in graphic form, of purely abstract relations—in this case the relations between the various kinds of thought in literature.

Finally, we come to language, remoter still from immediate physical reality. Here we have not even the semblance of a picture to guide us. But we must distinguish, once more, between the language of the home and the language of education. Both of these are fundamentally symbolical and conventional, but the language of the home is so early acquired by the child—and is, indeed, so well based upon the child's natural vocal expression—that it comes to be for him very closely bound up with physical reality. It is when he has to move towards the language of education that the symbolical, abstract and conventional characters of language present difficulty, and it is here that pictures and diagrams may help him. Each in its own way is a bridge between the child's everyday experience of things—mediated by everyday language—and the language of education.

Pictures are an aid to the comprehension of this language in its imaginative and descriptive uses ;

diagrams an aid to its comprehension in its more abstract and rational uses.

VI

What use can we make of pictures? The child's problem is this: in imaginative and scientific writing alike the work of language is frequently descriptive. The child is confronted with a series of words, the writer of which calls on him to respond by an act of imagination. He must imagine: fashion a train of images, pictures which do not simply represent reality, but which are particular aspects of it, selected for special attention by the writer. To some children —those who have verbal and imaginative ability— the task presents no very great problem; but to many others there is a real difficulty. To translate words into images it is not enough that he shall understand the words—that is, transpose the words into other words; nor is it even enough that he shall respond with imagination. What is essential is imagination held in check and controlled by the intention of the writer—the images must be those that the writer intends to call forth.

Here the teacher, using pictures, can greatly help the child. By comparing a picture with a corresponding description in words the child can be led to see more and more clearly what it is that words call upon us to do. Just as earlier he learnt to respond to this phrase or that by an appropriate physical act, so now he learns to respond to descriptive language by appropriate acts of imagination.

The critical teacher might perhaps point out here

that it is more reasonable to accustom the child to compare a verbal description not with a picture, but with the real thing described, with a specimen of the dodder, for instance, rather than with a picture of the dodder; or with an actual cottage such as that which Hardy describes rather than with a picture of a cottage.

The answer is not, of course, that it is easier to bring a picture into the classroom than a cottage. The fact is that a description of a cottage is actually nearer to a picture of a cottage than to a real cottage. A writer selects, just as a painter selects; the writer calls upon us to imagine not a real cottage, with all its varied and manifold appeals to the senses and the emotions, but—as we saw in the case of Hardy—a selection from all these, a picture; not perhaps merely a visual picture, but a picture nevertheless.

A real cottage appeals to the eye, the ear, even the nose; it may arouse in the onlooker all sorts of varied personal emotions and associations. A picture of a cottage is at once selective; it demands only the activity of the eye—and, at that, may even exclude colour; time is banished, and to a large extent personal emotions and associations are excluded. And a verbal description is like a picture in that it is selective—the mind's eye is directed by the writer only upon certain aspects of reality. When a child learns to see that a picture is parallel to a description he is already well on the way to dealing with reality, not as it is simply and primitively there, with its rich and clamorous demands upon the whole of his thought and feeling, but reality mediated by man.

Even though he were prepared to accept all this,

the critical teacher might still urge that since pictures are man-made, artificial, the child must needs be taught to look at pictures, be educated up to them, and that therefore it is wasteful of time and energy to make him compare verbal descriptions with them rather than with reality. The answer to this is that today, in the life of the western man, pictures are almost as common as words, so that the child learns to understand pictures almost as soon as he learns to speak. Long before he comes to school he is able, in looking at a picture, to make the necessary abstraction and adopt the necessary conventions—without, of course, being aware of all this. He is therefore accustomed to an artist's selective representation of reality, and it will not cost him a great deal of effort to grasp the notion that language and pictures are parallel ways of representing the real world.

So much for the general principle. Like all principles of teaching, it must be applied with discretion. The practical teacher will know how to select his pictures and how to use them while yet avoiding one possible danger: that the child is deprived of the opportunity of exercising his imagination. The value of pictures is that they are at first an aid to the imaginative comprehension of language, so that through their use the child in the end is made fit to dispense with them, and so respond of his own accord to the demands of descriptive writing.

VII

The general justification for the use of diagrams is something of the same kind. If they are not so

commonly used by teachers of English as pictures, it is perhaps because these teachers are often more interested in imaginative than in reasoned writing. But even as an aid to the understanding of imaginative description the diagram has its place, while in the study of exposition it is indispensable.

A diagram is a spatial representation of relationships; in a word, it represents all other kinds of relations in the form of spatial relations. The truth seems to be that by nature we find spatial relations the easiest to grasp. In the development of children, as far as we can tell by observation, the apprehension of spatial relations comes first—children of three are often well able to deal with them. The understanding of temporal relations follows; as for causal relations, the child may not begin to be at home with them until he is eleven years of age.

In a diagram we reduce every kind of relationship to a spatial pattern. Spatial relations are themselves simplified, as, for instance, in maps, street plans or diagrams of machinery. Time, again, is given a spatial form in such a diagram as a historical time-chart; and even logical relations may be symbolised by lines and spaces so that the eye may help us in understanding them.

The use of diagrams may therefore be said to run along with the natural working of our minds. When, as often, we find it difficult to deal with abstract relations we seize hold upon bits of the concrete to help us. The veteran fights his battles over again with the help of a couple of oranges, a fork, a spoon and a cruet. In a similar fashion, a diagram provides us

with a concrete visible pattern through which we can grapple with abstract ideas.

In the school, diagrams may be made an aid to all those difficult kinds of abstraction and imagination which are symbolised in the language of education. But here once more the critical teacher may enter an objection. What you are recommending, he may say, will no doubt be successful with boys—and perhaps only with selected boys at that—but it will certainly never do with girls. Girls find words easier than diagrams.

There is some truth in this, and the teacher will, of course, adapt his methods to his pupils. At the same time it is worth pointing out that diagrams are found difficult by some people for two reasons, neither of which weakens our main contention. In the first place, any form of activity, even though it be naturally easy for us, may be relatively difficult so long as we lack practice in it. Secondly, the difficulty that many—especially perhaps girls—find with diagrams may be not so much a difficulty with diagrams as a difficulty with the abstract ideas which they represent.

A child who says that he understands words better than diagrams may be deceiving himself; when he is confronted with scientific description or abstract thought expressed in words he substitutes for the accurate imaginative reconstruction or the logical process that the writer demands a vague succession of images and even of personal emotions. This is all the more insidious in that the child may subsequently repeat enough of the writer's words to pass muster not only with others but even with himself.

In this, as in much else that concerns the working of

people's minds, it is actual practical experience that will show us where the truth lies. Let us take a passage of expository prose in which relations of one kind or another are set out, and let us use every means of verbal explanation and of illustration—other than diagrams—to help a class of children to understand it. Then let us try to do the same thing with a similar passage, this time using diagrams. A few experiments of this kind will give the teacher some understanding of the part that diagrams may play in the comprehension of language.

One result will almost certainly appear : the attention needed to understand a diagram is itself more than half a victory over the difficulties of the ideas expressed in the corresponding language. In some cases it will come to the child with a shock of revelation that he has not up to now realised what accurate imagination or clear reasoning is ; he will be led to see that words conceal unsuspected depths and clarities of thought.

It may be added that one of the arguments against the use of pictures does not apply to diagrams. Of pictures it may be said that they may become an easy substitute for words, and so weaken the child's power of verbal comprehension. But a diagram is essentially an adjunct to words ; there are few diagrams that can stand alone, without some verbal explanation. In actual practice we find that the habit of trying to make out the meaning of a diagram, so far from leading to undue reliance upon graphic representation, brings with it the habit of attending closely to the meaning of the accompanying words.

As for the methods to be used in school, it would be tiresome here not to leave them to the skill and experience of the individual teacher. Two essential points may, however, be noted: first, that the relation between diagrams and words should become clear to the children through a constant alternation from one to the other—the diagram and the text helping to elucidate each other. Secondly, the teacher will find much to justify the use of diagrams by the children as an aid to expression, both spoken and written. So long as we demand a verbal explanation of every diagram, we need not fear that the time spent in making drawings is time wasted.[1] For the presence of a diagram not only fosters accuracy, relevance and order in verbal expression; it makes them essential.

Some children will need no encouragement to use diagrams. On the contrary, it is likely enough that many are prevented from using them by teachers who take too narrow a view of the nature of linguistic expression.

VIII

We come now to the use of discussion in class, perhaps the most obvious way in which the teacher may try to safeguard both himself and the children against misunderstanding in the interchange of language, but also the way most beset with pitfalls.

The chief value of discussion lies not so much in the actual explanations given by teacher and child as in the incidental clues given by both to what is in their minds. Understanding language must always be

[1] See page 57.

very largely a process of inferring the meaning of what is unfamiliar from the presence of a familiar context. In everyday life this context is most frequently provided by physical actions and the presence of physical things. But in the world of books the context for imagined events or abstract ideas, where it is not given by pictures or diagrams, must be a context of words. The fuller and the more appropriate this context, the smaller the risk of misunderstanding by the child; at the same time the more fully he is encouraged to explain what he understands, the smaller the likelihood that his mistakes will remain concealed.

Of the value of explanation and discussion every teacher is only too fully aware. There is danger of too great a zeal; teachers are in general so conscious of the need of a clear understanding of what is read that the study of prose and verse is overwhelmed by a burden of comment. The teacher in fact does his work as a guide too well, so that the child is relieved from the need to discover for himself the thought that lies beneath the writer's words.

Aware of this, the teacher may try to efface himself, encouraging the children to express themselves freely. In this way, at any rate, he escapes the danger of imposing his own interpretations upon them, and would seem to ensure the free exercise of their minds upon what they read. But in vacating his office in this way, the teacher not only exposes the children to those dangers of misunderstanding which may arise from their own immaturity. He goes farther than this—he allows a child to take his place. For in the

classroom where free discussion without guidance is encouraged there are always some who are content to wait and listen. For them the mature and ordered interpretation by their teacher may be replaced by the faltering efforts of other children.

Discussion to be fruitful must be conducted with a light hand, with a sense of balance and with judgment. Its manner and its emphasis must be dictated by the nature of the theme. Logical exposition is to be elucidated, imaginative writing illuminated. Sometimes the teacher must refrain from explanation; at other times explanation is a duty he must not shirk; most frequently, perhaps, he must suggest. Perhaps nothing will help him so much in the preparation and conduct of discussion as these questions to himself: What does the writer intend? What effects does he mean to produce? What thought and feeling does he demand of the reader? By what means can I—without obtruding myself—bring the child into harmony with the spirit of the writer?

At the same time, and always complementary to the check that he must impose upon himself, is the guidance that he must give to the children's expression of what is in their minds. He must remember that it is not always natural or easy for us to speak about what we have read: the understanding of exposition or the appreciation of imaginative writing may go on in silence. Yet somehow we must often make it natural for the child to express himself, not only because this is his sole means of letting us know that he needs our help, but also because it is through the very act of expression that he may find his own way to understanding.

IX

All this would suggest that teaching is difficult and good teaching impossible. But the practice of any true skill may seem difficult if not impossible when we describe in words its principles and its processes. Pleasure in the exercise of skill comes with the ease that is born of experience; it is because teaching is an exercise of skill that it is worth doing. Teaching by rule of thumb soon ceases to be teaching.

Nowhere is this more so than in that task of teaching that we have called linguistic education. For it is probable that nowhere else within the whole of the curriculum is there so wide a range of efficiency. Education in the use and comprehension of the mother tongue, where it is good is often very good indeed; where it fails it often fails utterly. And we may trace this in some measure to a perennial conflict in the minds of teachers. On the one hand it is a platitude that no aim is so important in our schools as a just education in the mother tongue. It is an article of faith, held the most strongly by the teachers of greatest experience, that nothing else can play so full or so vital a part in the life and mind of the child. On the other hand, there is the greatest divergency of opinion and lack of certainty as to how this education is to be conducted, and as to what are to be its immediate aims in school. Tradition hardly helps us at all, for although from the sixteenth century onwards there has always been some attention to English in English schools, the extension of education, in every sense, within the last fifty years has virtually brought with it a new problem of linguistic education. When

the school drew only upon homes where already there was a measure of familiarity with books, the gap between the language of the home and the language of the school was inevitably smaller than that which must often be bridged today. And when all the schools which concerned themselves seriously with linguistic education could rely upon the discipline and insight brought by the study of the classics and perhaps also of modern languages, their task was inevitably lighter than for most of our schools today, whose sole medium of linguistic education must be the mother tongue.

It is therefore, perhaps, a little too easy for teachers of the classics to say that the teaching of English has no system, no body of methods, no discipline, that it fails to train the mind. The reproach is just; but its very justice also reveals the possible weakness of education confined to the classics when compared with education in the mother tongue. Because Latin is a dead language, because no one today thinks in Latin, or expresses thought or feeling in Latin, the study of its literature and the composition of verse and prose may well be systematic, methodical and ordered, and a child may well be trained in habits of precision in dealing with them.

But English is a living language; it permeates the thoughts, the feelings and the actions of millions of living men and women. It is not a subject to be taught in a series of lessons, so that when we finish with it on Tuesday morning we can put aside all thought of it until Thursday. Mastery of the living language grows from hour to hour and is struck out,

in the heat of the living moment, of the effort to grapple with and seize hold upon the thoughts and acts of other men. It can hardly be brought within system and rule; nobody, not even the firmest believer in the formal virtues of law and order in education, can imagine that a child may be trained to such a pitch of disciplined habit that he will speak and write only according to stated principles.

The theme of this book, therefore, is that English in school is something more than training; it is education. It must inevitably embrace expression and comprehension to the fullest degree; the development of reasoning through language as well as understanding of the reasoning of others; the arousal of imagination as well as the apprehension of the thought and feeling of others. In a word, its end must be to fit the child to be one of a community, that is to say a group whose members communicate with each other, who have a common language.

If it be said, however, that these claims for education in language would seem to enlarge its scope to cover the whole field of education, we must answer No. Yet although language is by no means the whole of education, it enters into every part of it so that without language there can be no education. Since language is a necessary means for the development and communication of thought, feeling and action in society, at every moment of a child's life he must be helped to a fuller mastery of this indispensable foundation of his well-being among men.

And this is the task of the teacher who sets himself to guide education in language.

INDEX

A

Abstraction, 94, 97–9, 164, 184, 186, 212
Adams, John, 206–7
Advertisements, 68, 70–3
Analogy, 168, 171–3, 175
Audience, in literature, 95–6
in school, 44–6, 48

B

Biology, 84, 86, 88, 91, 97–8, 157–86
Books, everyday, 75–8
Bragg, W., 187–8
Brinsley, 50
Buckle, 110–17, 161

C

Cavendish, 157
Chemistry, 84, 86, 88, 91, 98–9
Children, language of, 15–17, 19–22, 35, 40–4, 198, 201–9
thought of, 42–4, 55–6, 162, 213, 216
Communication, 3, 4, 14, 83, 85, 94–6, 104, 155, 178, 193
Composition, correction, 61–4
everyday, 37–64
preparation for, 52–3
schemes in, 53–8
teacher in, 58–60
topics for, 49–51
Context, 12, 41, 155, 161, 205–7, 220
Criticism, 70, 72, 75, 116, 124, 162, 179

D

Darwin, 165–85, 187
Deduction, 164, 168, 173–9, 186, 188, 190–1
Description, 87, 94, 97, 102, 130, 132–45, 149–51, 161, 214–18
Diagrams, 55–8, 94, 150–1, 212, 215–19
Dickens, 125–32
Discussion, 34, 52–3, 219–21
Dodder, 158–61
Drama, 84, 86, 88, 95, 101

E

Eddington, A. S., 188–92
Eliot, T. S., 141–2
Enunciation, 20, 23, 26, 33
Explanation, 151–3, 219–21
Exposition, 33, 39, 44, 47–64, 218

G

Generalisation, 87, 94, 97, 100–1, 110–14, 116, 117, 122–3, 128, 146, 152, 161, 164, 168, 184, 190, 192
Geography, 84–8, 91, 97, 100, 147–56

H

Hardy, 134–8
History, 84–8, 92, 100, 110–17, 123, 127–9, 148–50, 152, 162

Holmes, Sherlock, 164
" Howlers," 203–9
Huxley, Aldous, 133
Hypothesis, 166, 180–1, 187–92

I

Imagination, 55, 79, 102–3, 115, 121–3, 129–31, 136, 138–9, 143, 145, 149, 155, 163, 201, 213
Induction, 164–6, 179–80, 190–1
Instructions, spoken, 32–3
written, 38–9, 46–9

J

Jefferies, 140–5
Jespersen, O., 204

L

Lamb, Charles, 66, 75
Language, functions of, 4, 11–12
system of, 12, 105
Lavoisier, 157
Letter-writing, 48
Literacy, 6, 75, 107, 199
Literature, application of, 38, 108
form in, 65, 96, 104, 144
nature of, 84
Locke, 50
Logic, 42, 47, 54–8, 89, 94, 102, 104–5, 121, 130, 145, 150, 162, 164, 173–9
Lytton, 93, 100–1

M

Mackinder, H. J., 147–56
Mathematics, 84, 86, 89, 94, 99, 104, 106, 171, 177, 191–2
McDougall, W., 168
Milton, 93, 96, 103
Music, 86, 88, 89, 94, 103, 106

N

Newspapers, 66–75
Novel, 84, 86, 88, 92, 95, 100, 115, 117, 125–32, 134–8

O

Observation, 176, 181–3, 190

P

Physics, 84–5, 89, 91, 95, 98–9, 153, 177, 186–92
Piaget, J., 43, 54
Pictures, 55–6, 135–6, 138–9, 150–1, 211, 213–15
Pliny, 92, 100
Poetry, 84–6, 88, 94–5, 102–5, 108, 115, 142, 144–5, 151
Pronunciation, 20, 23–6, 33

R

Radio, 7, 25, 27, 34, 71
Rhythm, 143–4
Royal Society, 156, 192

S

Satire, 117–24
Selection, in art, 135, 214–15
in science, 183
Shakespeare, 96
Shelley, 93, 102, 151
Smith, Mr., 12, 67, 84
Society, 6, 11, 16, 18, 19, 23, 54, 76, 83, 94–6, 104, 178

Speech as an art, 30
  everyday, 29, 32
  and personality, 17
  in school, 23–36
Standard English, 24–6, 36
Suggestion, 72, 116, 123–4, 131, 139, 145, 168–71
Swift, 117–24, 131
Symbols, 13, 105, 151, 177, 200, 210–11

T
Technical terms, 98, 121, 136, 146, 153, 157, 183–4
Thomson and Geddes, 160–1

V
Vesuvius, 90–3, 97, 99–102

W
Wordsworth, 142